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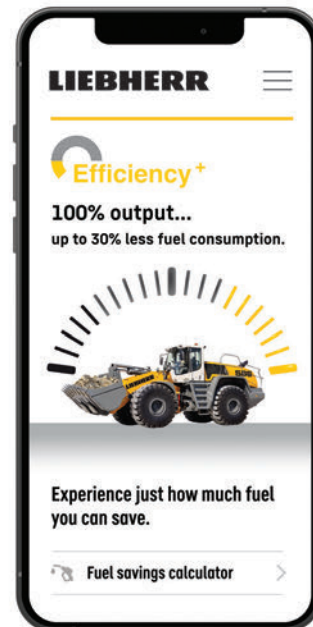


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\* Figures are a guideline based on the actual average of the model's global population in LiDAT and are subject to specific site conditions, materials, application and operator use. See how much you can save with Liebherr's real-time fuel calculator.



# Liebherr fuels big fleet investment

**The fuel efficiency of Liebherr equipment has been a crucial element of the purchasing process as a construction group beefs up the fleet of its earthworks and ground improvement division.**

The Middlesbrough-based Applebridge Family is made up of eight specialist businesses, one of which is ZTL Contracting, providing a full earthworks service from site investigation and modelling through to bulk muckshifting and remediation.

How much – or how little – fuel is consumed by plant fleets has assumed greater importance in recent times as users cope

with punishing price hikes and the removal of the red diesel rebate from construction equipment. With electric and battery technology not yet at the stage that could benefit large-scale earthmoving and stabilisation projects, ZTL continues to focus on managing its diesel bills. And a collection of new Liebherr dozers, dumptrucks and excavators is playing a vital role.



**'A huge cost and emissions saving'**



ZTL runs a large, mixed fleet and as the order book continued to grow needed to expand its plant holding, initially concentrating on dozers. Demonstration units were brought in from several manufacturers and it was Liebherr's 24-tonne PR 736 that stood out from the crowd and was put to work on a long-term demonstration where it continued to impress with its productivity, operator comfort and in particular, its fuel economy, so much so that another four were ordered, the final two of which are scheduled to arrive this month.



The machines currently on the books have been busy on two demanding projects in Yorkshire: one where the loads are a mixture of heavy clay, the other where old pit muck is the



**'Liebherr's PR 736 stood out from the crowd'**

order of the day. Gavin Metcalf, ZTL's Contracts Manager, has been monitoring fuel usage. 'We have been very impressed with the fuel burn considering the heavy material they have been pushing out. We are currently getting figures in the region of just over 19 litres per hour across the three machines.'

The three dozers have similarly impressed when push comes to shove. 'I've used a variety of dozers in my previous jobs and the Liebherr has certainly surprised me with its ability,' Metcalf added. 'It's also very comfortable to sit in, has a well laid-out cab, is quiet and has a great view to both corners of the blade.'

With the first Liebherr arrivals performing to expectations, ZTL turned its attention to the German manufacturer's TA 230 dumptrucks to compare against existing vehicles supplied by a rival manufacturer. The outcome was an order for five of the 28-tonne capacity vehicles that would subsequently be deployed to the same projects as the dozers. Fuel consumption has been "very good" according to Metcalf. 'They are using in the region of 5-7 litres of fuel an hour less than our existing fleet. That equates to an average between all five trucks of just over 18 litres per hour. Over a week, this is giving us a huge cost and emissions saving.'







Officially launched in 2021, the new generation TA 230s have been impressing customers across the country. Re-designed from the ground up as a direct competitor to the market-leading brands, they are powered by a 12-litre engine developing a class-leading 360hp and driven through an 8-forward, 4-reverse, automatic powershift transmission. Automatic gear selection enables the truck to automatically adjust to its current speed and load so that it always delivers the optimum torque levels to achieve high production and low fuel burn.

The spacious operator's cab has drawn compliments from drivers. It's easily accessed via the large glass door to the rear and once inside, the layout is functional and well-

designed. Also getting the thumbs-up is the suspension when traversing rough ground while visibility from the seat is rated as one of the best around.

'Operator acceptance of a machine is very important to us,' Metcalf commented. 'It's hard enough to find good operators these days so giving them a machine that they are comfortable in and is up to the job keeps them happy.'

ZTL's investment in Liebherr didn't end there. The trucks and dozers were quickly followed by two 30-tonne R 930 excavators. Part of the manufacturer's stable of Generation 8 machines and designed and built in Colmar, France, they marry the structural quality of the previous Generation 6 excavators to the latest Stage V engines and have since been joined by an R945 G8.

The new dozers and excavators form part of ZTL's drive to move the fleet towards "intelligent" machine control and are all equipped with Trimble Earthworks systems to increase productivity and accuracy. Trimble has been used on the trimming tractors for some time and the greater accuracy and speed achieved meant that rolling out the system to the rest of the earthmoving fleet was a natural progression. The machines were supplied pre-wired for the systems, essentially providing "a plug and play option".

Although fuel consumption was the main factor in specifying Liebherr, availability also helped swing the deal. Metcalf explained: 'We looked at other brands and their delivery times were very long in comparison. The Liebherrs were available either from stock or with a short lead time. They have also looked after us with the servicing package and so far, I can't fault the dealings we have had with the team.'

**'The dozers have impressed when push comes to shove'**



## THE CUSTOMER

ZTL Contracting is part of the Applebridge Family, a collective of eight businesses providing a complete 'end-to-end' sequence of services.

The strategy on every project centres on 'zero to landfill' with materials re-used in an environmentally sensitive manner, according to Construction Director Andrew Blighe. 'Using ground improvement techniques, we are able to offer our clients a sustainable value engineered solution whilst minimising the effect of waste to landfill.'

Other members of the family are: AD Plant Hire, Applebridge Civils, Applebridge Utilities, Applebridge Building Services, Geocast, Retaining UK and Tarcon.





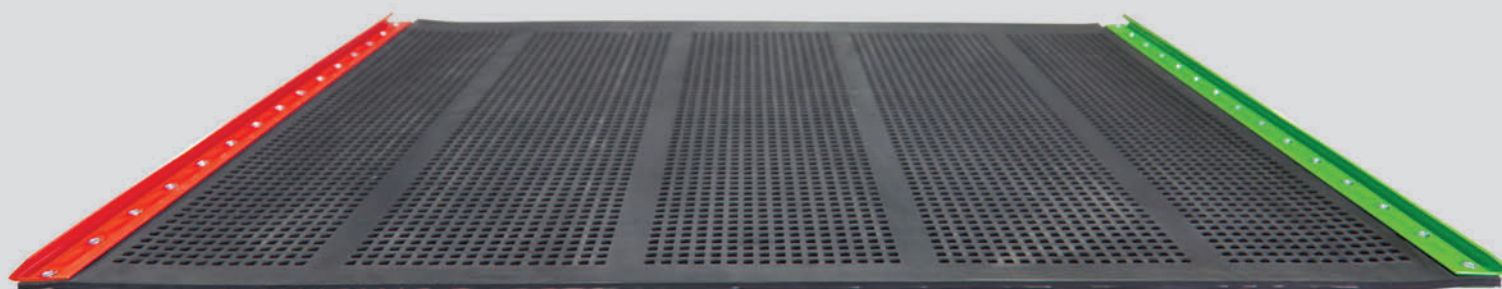
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**Advertising Enquiries:  
+44 (0)114 3830243**

Publisher **John Vincent**

Editorial & Marketing Director  
**John Edwards**  
07525 921714 john@hub-4.com

Media Manager  
**Sophie Morgan**  
sophie.morgan@hub-4.com

Graphic Designer  
**Jon Toft**

Director **Sue Vincent**

Associate Director **Ash Young**

# Welcome to issue 81

**Welcome to our fourth edition of 2023 - issue 81.**

Another bumper edition from the team at HUB-4 covering the latest news from the Quarrying, Recycling & Bulk Handling Industries.

This edition contains a preview on the forthcoming RWM show at the NEC and also a spotlight on the recent Molson Group Open Event and the installation of a huge Port Material Handler.

HUB-4 will have a stand at the RWM show – please come and say hello – stand R-N215.

Finally, our fifth edition of 2023 will focus on **MRF's and associated equipment** - I welcome any editorial contributions for this feature.

**John Edwards**  
Editor

## SEPT-OCTOBER 23

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**QUARRYING** - Open topics for this issue

**BULK HANDLING** - Open topics for this issue

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**Published six times a year.**



# Outback Rokbak! Aerolite Quarries bring an RA30 to Australia

**A Rokbak in Victoria is transporting hundreds of tonnes of rock a day at a demanding site which provides important construction materials to locations around southern Australia.**

It's a long, long way from Scotland to Australia. But 'Down Under' in Victoria, Aerolite Quarries has seen first-hand the remarkable benefits achieved through the acquisition of Motherwell's Rokbak RA30 articulated hauler.

Based half an hour north of Geelong in Victoria, Aerolite Quarries is a leading producer of construction materials for large infrastructure projects, supplying scoria and basalt-based construction materials to Melbourne and the surrounding area.

A very light honeycomb volcanic rock, scoria possesses a high strength rate as well as low tonnes to cubic metre, allowing more product at less weight to be delivered – lowering carbon footprint. The nondescript crushed rock is used for road base and overpasses throughout Victoria, and, as one of the region's biggest scoria suppliers, Aerolite projects often require 60,000 tonnes in the space of mere months. Now, with the RA30's arrival on site in Anakie, the articulated hauler is assisting the Aerolite operation.

## **A big truck for big operations**

Aerolite Quarries operates on a large scale, supplying thousands of tonnes of construction materials daily to meet the demands of significant infrastructure projects across Victoria. Finding reliable and robust equipment is paramount. Aerolite Quarries turned to Porter Group, Rokbak's Global Parts Dealer of the Year, and a company that Aerolite has worked with for close to a decade.



Having invested in the Rokbak RA30, Aerolite Quarries now has a robust and reliable hauler designed to tackle the toughest terrain and heavy loads. Since arriving on site the RA30 has demonstrated its efficiency working in a constant circuit, going back and forth between the fixed plant and mining area.







"We are flat out all the time," states Aerolite Quarries general manager Trevor Bartlett. "We've done a lot of projects where we are supplying 50 or 60,000 tonnes over a time of a period of months, hence the need for more and more equipment."

Covering 1,800 hectares, Aerolite Quarries contains two scoria quarries and a basalt bluestone quarry. Excavators fill up the RA30, which then takes the material across a distance of 100m to be processed at one of two fixed crushing plants. Aerolite has two large fixed plants which process between 1,000 to 1,500 tonnes per plant per day.

The Rokbak is efficient and consistent at what it does, with the capability of a 28-tonne (30.9 US ton) haul. The machine's superior traction and stability, combined with its payload, means it is able to transport larger quantities of construction materials and maximise productivity. The RA30's advanced articulated steering system also allows for greater manoeuvrability, effortlessly navigating challenging terrains and confined spaces with ease, while the visibility has been singled out for considerable praise.

"The vision and the cameras are very good," adds Trevor. "There are no blind spots, so the drivers can see everything, which is critical for us. The side mirrors are big, the camera works exceptionally well and the view through the windows in all three directions is perfect for us."

And the driver's seat is adjustable, so it doesn't matter whether you're 5'2" or 5'10", you get great visibility.



"The seats are air cushioned, so you can bounce up and down with them. It doesn't matter how bad the roads get. The cabin is almost like an independent capsule if you like – the driver comfort is fantastic."



## Got your back

The Australian articulated hauler market is the fifth biggest in the world. The country consistently sees high demand and experiences an extremely buoyant industry, which Rokbak is making inroads within.

"In Australia, we've seen the Rokbak colours go down very well," says Lee Irving, Rokbak Regional Business Manager. "That sand-coloured aesthetic is distinctive from any other equipment colour, and the brand name is growing and standing by itself."

"Our brand name stands for power, performance and reliability," adds Rokbak Managing Director Paul Douglas. "It's a name that reflects that we're a skilled, experienced and passionate team with a growing reputation. We are committed to making rock-solid haulers every day and will never waver on our promise to always support our customers and deliver powerful and reliable machines."





# The Bristol Port Company invest in Sennebogen technology

The Bristol Port Company was formed in 1991 when entrepreneurs Terence Mordaunt and Sir David Ord purchased the Port of Bristol from Bristol City Council. Since 1991 more than £600 million of private funds have been invested to create a modern, thriving business offering the full range of shipping, distribution, and logistics services.

## Royal Portbury Dock

The City of Bristol was built on shipping and the roots of the modern business go back to the 1870s. A constant theme in the development of shipping is that vessels increase in size. Ports need to keep pace with this development and the Port of Bristol is no exception, continual investment has been key to maintain their position as a critical link in the supply chain. With more than 600 people employed directly, there are over 12,000 employed within the dock estate.

Bristol Port offers one of the most cost-effective logistics solutions to its customer base through its ability to manage vessels of up to 130,000 dwt and its proximity to the major population area of the UK with 43 million people within a 250km radius. The Port has direct access to the strategic road network with junction 18 and 19 on the M5 and rail connections to both Avonmouth and Royal Portbury Dock.

Bristol Port is a key national asset and a major economic driver for the Southwest region; the company and businesses on the Port Estate contribute more than £1 billion to UK GDP.

With over 3 million tonnes of dry bulk goods and 25% of all UK animal feed imports it is important the port has the handling technology to efficiently cope with this.

## Investment in handling capability:

Over the past 10 years there has been significant investment in Sennebogen port handling machinery with two Sennebogen 830E material handlers being supplied 8 months ago and the recent installation and commissioning of a Sennebogen 870E Hybrid with a second 870E to follow immediately.

All these Sennebogen port handling machines have been delivered by the Molson Group, the UK's largest independent new and used equipment dealer. With a customer focused approach, Molson Group are able to provide clients of all sizes a single source supply option of market leading products.

From 16 locations strategically positioned throughout the UK, their team of over 95 fully trained service engineers and millions of pounds worth of parts, keep the business running.

## Dedicated team:

The impressive Sennebogen 870E machines are delivered to the site in separate parts by 6 different trucks and then a specialist "big build" team of Molson engineers assisted by cranes and various equipment assemble the machine which is completed in three weeks. This build is completed by a team led by Matt Green who complete around 10-14 big builds/year including two 895 machines recently commissioned in Liverpool which are the largest machines of their type in the world.



The Sennebogen 870E Hybrid at Bristol Port is supplied with a crawler undercarriage allowing the machine to work in parallel with the vessel and incorporates a 4 metre/cu clamshell grapple which is perfect for handling dry bulk materials. Molson also ensure that the operator understands how to get the absolute best out of the machine when unloading a vessel. The Sennebogen 870E Hybrid has been sold with a Molson service agreement to ensure the machine is kept in perfect condition.



Lucy Ellis CEng, Project Engineer (Procurement), commented, "We have invested in Sennebogen for over 10 years, the German build quality is of a very high-standard and we have had years of reliable service from our fleet of Sennebogen port handlers. It has also been underpinned by our relationship with the Molson Group and their engineering team support which has always been first-class which has been a boom for our machine availability and performance."

## **The Sennebogen 870E Hybrid:**

Back in 2016 Sennebogen introduced the new 870 material handler for demanding material handling tasks at ports. Since then, numerous machines have proven their worth in applications all over the world. With convenient load capacities of 8t and a maximum reach of up to 25 m, the Sennebogen 870E Hybrid is precisely what many port operators are looking for. In particular, the Green Hybrid energy recovery system reduces fuel consumption by up to 30%.



Reliable technology, minimal operating costs, and innovative, custom solutions for any challenge the Sennebogen 870E Hybrid comes with a powerful 261kW diesel engine complying with Tier 4f emission standards, including automatic idle stop and EcoMode. A 250kW electric motor is also available.

The proven Sennebogen modular concept offers extensive superstructure variants to meet customer requirements. From mobile undercarriage to crawler and rail undercarriage, extending to sophisticated gantry and pylon solutions for special application areas, all can be individually implemented. For port handling, particularly with gantry and pylon superstructures, the Sennebogen 870E Hybrid reaches an outstanding viewing height and offers ideal prerequisites for fast work cycles - this is a valuable contribution in the areas of

shorter berthing times and greater occupational health and safety, especially when unloading ships.

In daily operation the Sennebogen 870E Hybrid at Bristol Port is characterized by its high level of serviceability and ease of maintenance. The walk-on upper carriage with continuous gallery ensures uncomplicated access to maintenance and service points. Typical for Sennebogen in this regard is also the clear arrangement of all components, and the proven longitudinal installation of the engine offers service advantages. Moreover, the all-round railing, an additional access ladder to the cab, as well as powerful LED headlights and peripheral cameras that support the operator in his work, ensure safety.







# Molson 3-day Open Event







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# Warwick Ward makes the move to employee owned

**Warwick Ward (machinery) Ltd. was founded in 1970 by Mr Warwick Ward and has grown into one of the largest stockists and suppliers of new & used earthmoving and material recycling equipment, and spare parts in Europe.**

Partnering with premium brands CASE Construction Equipment, TEREX Ecotec, KEESTRACK crushing and screening equipment and more recently TEREX Recycling Systems, the company provides outstanding aftersales support via a dedicated nationwide service team and depots in the North, Midlands, and the South.

The company have recently announced that they have joined an ever-increasing list of UK companies to make the transition to being Employee Owned. As a result, employees of Warwick Ward will all profit individually from the future success of the company and benefit from representation on the board of trustees. No jobs are at risk as a result of the transition, and both owners will continue to take an active role in the business.

Ashley Ward, joint Managing Director at Warwick Ward, said: "This is an incredibly exciting new chapter for Warwick Ward (machinery) Ltd as we approach our 54th year of trading. Over the past 6 years or so my brother and I have been working on a succession plan for the future of the business and after a lot of research and consideration we feel that the EOT model is a perfect fit for both the business, our brand partners and for ourselves. It provides motivation for the staff, stability and continuity and ensures the legacy of Warwick Ward continues in the way we want it to".

"Over a substantial period of time, we have worked hard to put in place a fantastic senior leadership team in Simon Causier (Commercial Director), Matthew Godhard (Operations Director) and Russell Holmes (Finance Director) who are pivotal and responsible for the day to day running of the business. Matt and I continue to work closely with the senior team during this transition".

"The EOT model is incredibly exciting and motivational for all our driven and dedicated team as they are now all employee owners in the business, have representation on the trust board and will profit individually from the future success of the company".

Simon Causier, Commercial Director at Warwick Ward, said: "Having now been part of the management team for the last 15 years, it has been an exciting and successful journey for the company over that period. The way the business has evolved and grown over recent times has been phenomenal and everyone at Warwick Ward has a huge amount of pride in the company and utmost respect for Matt and Ashley and how they have strategically shaped the business since taking over from their father 23 years ago".

"The transition to being an EOT is a fantastic and exciting opportunity for all the staff and senior management team to now play a pivotal role in the future success and continued growth of Warwick Ward and we are all thrilled at the opportunities that lie ahead".

For more information about Warwick Ward (machinery) Ltd, visit: <https://www.warwick-ward.com>





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## 170 million euro investment: New Liebherr production site in Alsace



The planned production site in Nambenheim for welding components and cabins is expected to provide more than 300 new jobs.

**Liebherr-France SAS, based in Colmar, France, is responsible for the development and production of the Liebherr Group's crawler excavators. As part of its efforts to strengthen local supply chains, Liebherr-France SAS is planning to open a new manufacturing site for welded components as well as pre-assembly and assembly work for driver cabs in the EcoRhena industrial park in Nambenheim (Alsace, France) in 2025. Liebherr is investing 170 million euros on an area of around 47 ha and will create more than 300 jobs.**

On Wednesday, 21 June, Liebherr officialised the investment plans of Liebherr-France SAS for 2025: 170 million euros for the purchase of an industrial site area in Alsace. For several years now, Liebherr-France SAS has been planning to relocate certain activities to the vicinity of its existing manufacturing site in Colmar in order to further strengthen both its competitiveness and its independence in the long term.

Against this background, Liebherr decided to purchase a site in the EcoRhena industrial park in order to establish a new location for its Colmar production company there. The industrial park in Nambenheim, France, is under the responsibility of a French special-purpose association (Syndicat Mixte Ouvert), which also manages the Rhine port of Colmar/Neuf-Brisach. With the support of this Syndicat Mixte Ouvert, Liebherr-France SAS has acquired the land at the EcoRhena business park in Nambenheim (Haut-Rhin). Close to the existing Liebherr-France SAS in Colmar, not far from the Swiss and German borders and in close proximity to a multimodal transport centre, the EcoRhena site offers the ideal location for this project.

Two different production activities: welded components and assembly work on driver's cabs

One production area will be dedicated to the production of important welded parts for Liebherr's construction machinery portfolio, such as crawler and mobile excavators. These include components of the chassis or work equipment. This area will offer a wide range of technical professions in the fields of welding, machining and plant engineering, among others.

In addition, a second production area is planned for pre-assembly and assembly work on driver's cabs for Liebherr construction machinery. Jobs are to be created here in the fields of assembly and logistics, for example.

## EvoQuip launch their biggest Bison Jaw Crusher

**EvoQuip has launched the Bison 340—the newest and largest addition to their Bison jaw crusher range. The 34-tonne crusher has a 1000mmx600mm jaw chamber opening and boasts an impressive output potential of 280tph (308 US tph) depending on application.**

A high-performance primary jaw crusher, the EvoQuip Bison 340 is designed for operators in quarrying, demolition, recycling, and mining applications. It features track mobility for a quick setup time and hydraulic crusher setting adjustments for total control of product size. The hydrostatic drive, which is included as standard, allows the crusher to be run in reverse. This is particularly useful for removing blockages from the chamber or when crushing in a sticky application like asphalt.



Andrew Armstrong, EvoQuip Product Manager, said "The Bison 340 jaw crusher is a big addition to EvoQuip's Bison range, which can cater for operations of all different sizes and needs. It has a heavy-duty, wear-resistant feed hopper. The aggressive crushing action is accompanied by a high swing jaw, which encourages material entry into the crushing chamber. Pair that with the hydrostatic ability to run the crusher in reverse, this results in the Bison 340 having high production and minimal downtime."

"As with the entire EvoQuip range, the Bison 340 is compact and easily transported from site to site. The Bison 340 is at home in hard rock quarry applications, as well as recycling applications. It also has an efficient drive system and low engine RPM to enable it to be run with low fuel consumption."

All Bison jaw crushers come with the T-Link telemetry system fitted as standard, providing customers with real-time information on the performance of their machine, leading to effective machine management and maximised uptime. This data can be accessed through a tablet or smartphone and provides comprehensive information on the location, fuel consumption, tonnages, wear ratings and operating hours along with much more.

The Bison 340 is available to order now for 2023. For more information contact your local EvoQuip dealer: [www.terex.com/evoquip/find-a-dealer](http://www.terex.com/evoquip/find-a-dealer)



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# Blue Central to showcase their “Leading Brands” and “Leading Service” at upcoming Technical Open Day

**Blue Machinery (Central) Ltd are hosting an open house at their headquarters in Cheshire on Tuesday 12th and Wednesday 13th September 2023.**

Their suppliers will be travelling from all over the world to be in Cheshire to display their market leading equipment and solutions across the two days. The list of equipment suppliers attending includes Powerscreen, Fuchs, Doppstadt, Develon, Terex Washing Systems, MDS, Morbark, Portafill, Westeria, Rammer, Allu, Shearcore, VTN, Xcentric, OilQuick, Engcon and Strickland.

One of the objectives of the Technical Open Day is to highlight the support and technical competence of the OEMs. The event will give you the opportunity to come and speak to the suppliers directly, with your questions and ideas. To learn about the features and benefits of what each machine can do to help users add value to their business. Blue Machinery will look to demonstrate how the combination of leading brands and leading service can help take your business or specific project forward.

The Technical Open Day will not only showcase the competences of the suppliers but also illustrate the technical ability of the inhouse team at Blue Machinery. Both the Blue Spares and Blue Care teams will be on hand to discuss how their leading service can maximise your uptime and boost productivity.

Blue Central will also be joined by several non-machinery partners including the Lighthouse Construction Industry Charity and Gaz Evans Models.

You can expect the usual Blue hospitality across the two days with plenty of great food, refreshments, live music, giveaways and plenty of prizes for all those that give up their time to attend.



You can register for your FREE ticket by scanning the QR code or visiting <https://events.blue-group.com/>







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# Registration now open for RWM Expo 2023



Tickets are now available for the 2023 RWM Expo, the UK's premier event for professionals working in the recycling, resource, waste, and wider environmental services industry. Formerly known as RWM & Letsrecycle Live, the event provides a platform to connect with others, learn, and drive positive industry and environmental change via discourse on sustainable resource management. The exhibition takes place on **13-14 September 2023 at the NEC, Birmingham.**



You can secure your **FREE** ticket by visiting <https://hubs.la/Q01WLJPV0>

## ESS Expo 2023

This year will see RWM become part of the Environmental Services & Solutions Expo, forming the UK's largest event dedicated to the environmental services industries, which attracts an audience of **12,000+** professionals. This conglomerate of events stems from a series of environmental B2B shows uniting under one roof at the NEC, giving rise to the ESS Expo. This massive expo now forms the 'umbrella' event for the following renowned exhibitions: **RWM** (Resource & Waste Management Expo), **EFD** (Energy, Fuels & Decarbonisation Expo), **FWM** (Flood & Water Management Expo) and **CLR** (Contamination & Land Remediation Expo).

RWM takes place in halls 17, 18, 19, and a re-vamped 10,000m<sup>2</sup> of outdoor exhibition space and live vehicle demonstration areas. The event is set to address a broad range of environmental issues, including resource management, net-zero targets, waste collection & transport, circular economy practices, sustainability, and much more.

## What's On?

The event will see more than 300 industry leaders speak in seminars, meetings and discussions as well as an on-site pub, street food market, live music, and a host of special guest appearances.

Visitors will also be able to hear from experts and key industry figures in the conference theatres, do business **with over 600 world-class suppliers**, see the latest innovative equipment and vehicles in the demonstration areas, and make powerful new connections at dozens of exclusive networking events designed to bring the industry together and spark meaningful change.

Key highlights for 2023 include headline speaker sessions from climate campaigners, environmental experts and numerous top-tier thought-leaders in recycling, resource and waste management. Blue Planet II Executive Producer James Honeyborne, the Financial Times' Moral Money Editor, Simon Mundy; and award-winning environmental campaigner Tristram Stuart. The show will also feature an exclusive Fleet Managers' Forum, the yearly Women in Sustainability Breakfast Meeting, the Zero Waste Recognition Scheme, and the 35 Under 35 Awards, which celebrates and recognises the industry's rising stars and future trailblazers.

## Register Free Now

In 2022, over 9000 professionals gathered to see industry innovation and hear updates from 200+ expert speakers. The event spans 3 exhibition halls and a large outdoor area for equipment, machinery, and vehicle demonstrations.

Organised in partnership with leading organisations including the **Chartered Institutes of Wastes Management, Environmental Services Association** and **letsrecycle.com**, get ready to connect with the biggest players and access need to know insights; all in one place over two action-packed days at the NEC, Birmingham.

The full programme of networking events, speaker sessions, workshops, talks, and live demonstrations will be released in the coming weeks. To be the first to hear announcements, register for your **FREE** ticket now: <https://hubs.la/Q01WLMQ60>

## One FREE ticket gains you access to all events.

**Date:** 13-14 September 2023

**Venue:** NEC, Birmingham

**Halls:** 17, 18, 19 & 10,000m<sup>2</sup> outside area

**Opening Times:** 09.30 - 16.30







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## Come and meet the team at RWM - Certora Training Showcase



**Certora are delighted to be returning to the RWM show this year, a lot has changed since they last exhibited in 2018. Formerly known as Mentor Training Solutions and SERAC UK, both companies have come together to create the complete training, assessment and qualifications service supporting specialist UK industries including waste management, utilities and local authorities.**

The Certora team will be at the RWM show on stand RN 194 to meet with anyone who wants to talk training, safety and qualifications. Whether you are looking to train equipment operators onsite or ensure you have the technically competent individuals to run your facility in line with the Environmental Permitting Regulations, the team can help.



### **CIWM (WAMITAB) Qualifications**

Certora offer a complete range of CIWM (WAMITAB) qualifications for all permitted facilities whether you are looking for a qualification in a low, medium or high-risk environment. The e-portfolio system that the Certora assessors use allow for a smooth journey for learners and an accessible method of providing evidence to the assessor. Learners and their managers have access to the e-portfolio system allowing full visibility of learner progression and milestones making the whole process of progressing through and completing the qualification seamless.

### **Onsite learning is not an option??**

For those learners who are not yet working on a facility - maybe it is in construction, or you are looking to upskill so do not have access to a site - Certora have you covered. Whilst the onsite assessment route to the qualification may not suite you our virtual classroom VRQ most certainly will. Delivered by our senior assessors this 5-day course consists of 4 days of full training and a drop in session to support you with any queries you may have prior to completing your question papers. It has proven to be a highly popular route to achieving an Operator Competence Certificate and can be tailored to meet the requirements of a multitude of low or medium risk facility permits. Certora have already supported hundreds of UK businesses through this route to demonstrate competence.



### **Accrediting Equipment Operator and Safety Training**

Accredited by many of the leading standard setting organisations Certora offer a wide range of equipment operator training courses. Delivered throughout the UK, on your site to ensure specific job training is captured within the training courses. Whether you have materials handlers, cab cranes, clamp trucks, telehandlers, mini diggers or access platforms, the Certora Operational training team can help.

### **Continuing Competence Refresher Training - Updated for 2023**

Recently updated our new Continuing Competence Refresher course may be of interest for anyone who already holds their certificate of Operational Technical Competence but is due their refresher. This updated course is ideal and is run over a 1 day virtual classroom session but will soon be incorporating eLearning to provide individuals with greater flexibility to refresh their knowledge ready to renew the certification

### **Managed Service - NEW for 2023**

Over the last 5 years Certora has been approached by several existing customers to expand their service and support in the facilitation, administration, and management of all operational training and qualifications. This service has proved invaluable to those customers who now rely on the Sourced Training Team, headed up by Tracy Colton, Commercial Manager to ensure that their sites are getting all of the required training inline with the competency matrices.

Certora not only administer the training, they work directly with SHEQ and compliance teams to ensure that customers are getting the most relevant and cost effective training for their business.

Come see us on stand RN194 and let's talk.





# BSH Recycling Invest in Pronar Technology

**Bourne Skip Hire and Recycling LTD (BSH Recycling) are a leading provider of skip hire and waste management services throughout the East Midlands, operating from its two sites in Bourne, Lincolnshire and Peterborough, Cambridgeshire.**

Formed in 2002 by Chris Seggie - Managing Director and his father Norman, BSH Recycling have grown from a single vehicle operation to the complete solution it is today. With a fleet of skip lorries, grab and tipper lorries, refuse vehicles and vans... the company has the solution to every waste management problem.

After 13 years of operation from its site in Bourne, Lincolnshire, BSH Recycling opened its sister depot within Peterborough in mid-2015 to cope with high demand. Both sites are registered waste transfer stations, enabling BSH Recycling to process waste material, recycling where possible to deliver industry leading landfill diversion rates.

With over 50 employees, 26 vehicles and in excess of 2000 skips, Bourne Skip Hire have an extensive range of assets at its disposal. Having expanded its coverage area to meet ever-growing customer demand for quality service, the company covers a large catchment area including Bourne, Boston, Sleaford, Grantham, Oakham, Stamford, Deeping, Peterborough, Corby, St Ives, Huntingdon, and Downham Market.

## **A Commitment to Sustainability:**

Back in November 2022, the company invested in a Pronar MRW 2.75G Slow-Speed Tracked Shredder, supplied by Global Machinery Solutions... one of the largest machine dealers and suppliers to the recycling industry in the UK and Europe.

The Pronar MRW 2.75G Slow-Speed Tracked Shredder is a powerful and versatile machine, ideal for a wide range of materials including construction waste, municipal waste, bulky waste, and concrete.



Equipped with an asynchronous gear with specially developed programs, it can process a wide variety of materials without the need to change settings. The shredder is also equipped with easily replaceable shafts in the cassette, allowing for quick preparation of the machine to work on several types of materials.

The Pronar MRW 2.75G shredder weighs just 18 tonnes, making it easy to transport and no movement order required.

The long discharge conveyor allows the machine to make a high stockpile, or to directly load trucks. The Volvo Penta 7.71, 280hp engine allows for smooth operation even with difficult materials.

Chris Seggie, MD - BSH Recycling, commented, "From its conception back in 2002, the Company has evolved and developed into what you see today... an enterprise that focuses on its environmental impact, reducing waste to landfill and quality of its service offering."







"Previously to investing in the Pronar machine, the Company operated an Arjes 250 Impactor to crush brick rubble and hardcore which was also used to shred wood in order to reduce the size of the material, ideal for increasing the weight loaded into trailers and transport efficiency. However, we could not produce a small enough product for us to be able to sell into the power stations... at that point we started looking at the Pronar machine and how it could transform our operation.

"Global organised an on-site demonstration which was highly successful, and the machine was commissioned in late 2022. Initially, we only processed wood but Global suggested we should try processing our mixed municipal waste as well. This was also very successful and gave us immediate savings on haulage costs. The machine is now utilised to shred wood and mixed municipal waste, allowing us to load trailers to their full capacity, equating to an additional 10 tonnes per trailer.

"On average in an eight-hour day/5-day week, we are processing 135 tonnes of wood and 156 tonnes of waste. Additional benefits of the machine are in winter... when shredding wet waste and stockpiling it in a shed, we have found that the heat generated from shredding the material dries it out, creating additional savings on tipping costs.

"This investment in the new mobile shredder is part of BSH Recycling's commitment to providing its customers with the best possible service. The shredder allows the Company to shred waste and considerably reduces the amount of vehicle movements from site. The shredder also helps to reduce the amount of waste that goes to landfill, an objective which is in line with BSH Recycling's commitment to sustainability."







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Want to increase your margins in plastic recycling?

With AUTOSORT™ – the world's most powerful multifunctional sorting system, you can achieve higher throughput and exceptional purity levels across a variety of polymers and colours. Compact and flexible in design, it complements both new and existing plants.



## Reliability is key at Enva Wood Recyclers, Tilbury



**Enva Wood Recyclers in Tilbury process vast quantities of waste wood, which is then either recycled into over 20 sustainable, saleable products such as wood fibre bedding, or it is sent to biomass facilities as fuel.**

As a small site that processes big tonnage, Tilbury provides a challenge for Enva as machine reliability is critical. Furthermore, being based on Tilbury docks, any delays in processing can lead to delays in the boats leaving. This can incur big fines, so time is of the essence, and everything has to run like clockwork.

After consulting with CRJ Services, Enva chose the HAAS 2000 XL 2.0 for their Tilbury site, their 3rd HAAS Tyron at Tilbury to date, and their 5th HAAS within the Enva Wood Recyclers group.

HAAS shredders have an excellent reliability record and, together with CRJ's industry leading service levels, ensures that Enva have maximum uptime throughout the machine's life.

Enva bought their first HAAS from CRJ Services in 2015 and this purchase takes them up to a total of 5 machines.

"This is a testament to the ongoing service and support that CRJ have provided to Enva since 2015. We have a great relationship, and we look forward to many more successful years working with Enva." - Mike Symons – Sales Manager at CRJ Services Ltd.



# Liebherr exhibits industry-leading products



**Liebherr has long been a front runner in developing specialist equipment for the waste and recycling sector and a selection of its industry-leading products will be on show.**

The industry has grown quickly over recent years and Liebherr has matched that expansion by continuing to build machines that are tailored to any application, from general waste handling to highly specialised recycling operations.

Machines from our telehandler, wheeled loader and material handler portfolios will be operating in the demonstration area, supported by running commentaries on the benefits for waste industry users.

Visitors can then have a closer look at the equipment in our static area and hospitality suite, with Liebherr technical personnel on hand for further discussions and questions. Product specialists for each machine type will handle inquiries on specific options. Also on site will be representatives from our Rental Division, Aftersales Department and Used Equipment Department.

**Material handlers:** These are designed for faster cycles and greater handling capacities while raising the bar in power, reliability and fuel efficiency. Machine choice is as varied as the applications they are asked to perform, whether in a dusty indoor facility or sorting and loading in a large yard.

**Wheeled loaders:** Setting new benchmarks in performance, fuel economy, versatility and comfort. Power-split driveline ensures efficiency throughout all operations. Models for all size categories will cope with all types of materials with ease.



**Telescopic handlers:** Versatility is the keynote for these machines which can be equipped with various attachments to move scrap, solid municipal waste, industrial waste, rubble and bulk materials. And because of their small turning radius and manoeuvrability, they are an ideal tool for moving large volumes of material in restricted working environments.

**Stand no LR19**



# Veolia introduces their first Sennebogen 821M Electric - Series E 2023 Material Handler in the UK

Global resource management company, Veolia, has introduced their first Sennebogen 821M Electric - Series E 2023 Material Handler in the UK. Installed at the company's flagship Integrated Waste Management Facility (IWMF) in Southwark, the Material Handler will be used to load the incoming recyclable waste into the bag splitters of the Material Recovery Facility (MRF), which separates the different recyclable materials so they can be sent for reprocessing into new products...

Prioritising sustainable patterns of production is a top priority in Veolia's journey towards ecological transformation and adapting mobile plant vehicles to electric is just one way to achieve this. This also supports Southwark Council's Climate Action Plan, and ambitions to reduce carbon emissions from the waste management fleet.

Making the switch to electric power for the MRF the Sennebogen 821M Electric - Series E 2023 Material Handler will create a 65% saving in CO2 emissions per year compared to a diesel-powered alternative model. That's 66 tonnes of CO2 emissions avoided annually, equivalent to taking 39 cars off the roads of Southwark each year.

Due to the reduced wear and tear and lower maintenance requirements for electric machines versus diesel ones, the



equipment is also expected to have a longer lifespan, going beyond 20,000 hours of run time, that's five years in Southwark's 24/7 Integrated Waste Management Facility. The vehicle has been fondly named Caroline after the manager who undertook the procurement exercise for this equipment.

Matthew Crane, Veolia Southwark Regional Manager: "Here at Veolia Southwark we are very proud to welcome this new Sennebogen 821M Electric - Series E 2023 Material Handler to our site. This is a company first that will reduce our carbon emissions and improve sustainability as well as helping us on our journey to ecological transformation."

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# TOMRA to showcase its world-class sensor-based sorting solutions at RWM Expo 2023

TOMRA's flake sorters offer unrivalled versatility, flexibility, and performance

**Visitors to RWM Expo 2023, which takes place on 13-14 September at the NEC in Birmingham, will have the opportunity to find out about TOMRA's world-class sensor-based sorting solutions.**

Representatives from TOMRA's Recycling divisions will be on hand at Stand R-N142 to highlight the latest advances in sensor-based sorting technology for plastic flake sorting, wood recycling and material recovery from RDF.

TOMRA's flake sorting solutions are capable of detecting and accurately sorting by polymer type, as well as separating different colours, simultaneously generating multiple fractions. Regardless of the polymer application, TOMRA's flake sorters offer unrivalled versatility, flexibility, and performance, and generate reliable flake quality comparable to virgin polymers. By integrating the most advanced flake sorting technologies in a recycling plant, materials can be shredded and washed in a single line before entering the flake sorting process. This, in turn, eliminates the need for multiple lines or batch processing. Embracing these solutions gives recyclers access to vast quantities of post-consumer materials to create high-purity fractions of rPE and rPP.

TOMRA's experts will also be on hand to talk to visitors about a wood recycling application which combines TOMRA's AUTOSORT™ unit with the company's deep learning-based sorting add-on, GAIN™. The result is a solution which allows



**TOMRA will showcase its world-class sensor-based sorting solutions**

companies in the wood recycling sector to optimise their wood sorting processes. With sophisticated sensors and the power of artificial neural networks, GAIN™ goes the extra mile to classify and purify wood chips by distinguishing between various types of wood-based materials, including MDF (medium density fibreboard), HDF (high density fibreboard), WPC (wood polymer composites), OSB (oriented strand board), chipboard and plywood. Previously, these materials could not be separated based on their form and texture. When used in wood sorting, GAIN™ delivers exceptional results, and is proving to be an extremely effective, scalable, and flexible solution.

**Stand R-N142**





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# LIEBHERR

### Attachments



# Major recycling facility invests in Starclean to keep their conveyors moving

**Starclean belt cleaners improve performance of 32 conveyors at Recycling and Energy Recovery Facility (RERF). Reducing clean-up of waste and reducing maintenance...**

The RERF removes recyclable materials from black bin household waste and recovers energy from the remaining waste. As part of the Mechanical Pre-Treatment (MPT) process, over 50 belt conveyors transport waste around the plant.

The variety of materials conveyed was extremely challenging to handle and often overwhelmed the OEM conveyor belt cleaners. Waste clogged the cleaners and became entangled in the mechanism. Cleaning performance was reduced, resulting in additional waste being dropped onto the floor. The build-up of waste also jammed conveyor components and caused regular stoppages for replacement.

In search of a better solution, the maintenance supervisor contacted ProSpare.

The client chose to trial Starclean belt cleaners on the facility's longest conveyor. It dropped the most waste and regularly experienced downtime for cleaning and roller replacement.

ProSpare installed a Starclean PU pre-cleaner and tungsten secondary cleaner to combat the effects of both the larger items of waste and the sticky organic material which adhered to the belt surface.

Since installation, the belt is notably cleaner and waste dropped from the conveyor has dramatically reduced. It also experiences far fewer problems from waste interfering with return rollers.

Following this success, the client has installed 50+ Starclean belt cleaners, experiencing large improvements across 32 conveyors. With Starclean:

- Frequency of clean down for scrapers has halved.
- Time involved for scraper clean down has reduced from 15mins per scraper to just 2mins.



- Each scraper can now be cleaned by one operative instead of two.
- Downtime reduced as fewer problems are experienced with rollers.

The maintenance supervisor stated: "The Starclean belt cleaners really help minimise problems in our challenging environment. We are cleaning up significantly less waste and spending less time maintaining the conveyors."

For more information visit [www.prospare.co.uk](http://www.prospare.co.uk)



# Stainless Steel Separator

## Capable of separating stainless steel up to 150mm

The unit shown below can be rented for testing onsite at a customer's premises under real operational conditions.



Bunting engineers designed and patented a Neodymium Rare Earth magnetic roll that produces an ultra-strong magnetic force to attract even large and heavy materials with weak magnetic properties. 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 (e.g. Stainless Steel).

### Technical Details

Net Dimensions:	1550mmW x 3770mmL x 1640mmH
Net Weight:	1150kg
Gross Dimensions:	1550mmW x 3770mmL x 1640mmH
Gross Weight:	1250kg
Belt Speed:	Variable

After successful testing on the test unit, Bunting are able to offer a productional machine that matches your individual throughput and requirements.

**For further information or if you are interested in hiring this unit, please contact  
T:+44(0)1527 65858 or e-mail: sales.redditch@buntingmagnetics.com**



## RECYCLING ROCKS: Greater Manchester Mayor Andy Burnham visits NRE Aggregates recycling facility

**Andy Burnham, Mayor of Greater Manchester has visited a state-of-the-art construction and demolition wash plant run by NRE Aggregates, part of regeneration business Peel L&P.**

The new aggregate recycling facility repurposes demolition waste which would normally enter landfill to create sustainable aggregate products, contributing to the circular economy and reducing carbon emissions in the North West.

Mayor Burnham was hosted by The Peel Group Chairman, Mark Whitworth and Associate Director of Asset and Materials Management, John Peaker as they embarked on an interactive tour of the new wash plant, highlighting the positive impact it will make across the Greater Manchester economy.

Located near to the AJ Bell Stadium, the aggregate recycling facility works by separating gravel, sand, clay and other debris from materials which have been extracted from construction projects in Greater Manchester.

The process starts with the material being fed onto a conveyor belt towards a screen which separates out larger rocks and debris. The screened material is then processed through wash plant technology, developed by global processing experts CDE, the world's leading provider of wet processing solutions with applications across a wide range of materials within the natural processing and waste recycling sectors.

Water used in the process is recycled and clay is recovered by a filter press for use as fill material or flood defence works, subject to approval and testing.

The process recycles up to 99% of the waste material received at the site and deploys rainwater harvesting to recover water for reuse in the process.

After a tour of the plant and climbing the 15-metre-high structure, Mayor Burnham returned to ground to discuss the importance of recycling projects like the Port Salford Aggregate Recycling Facility with members of the team.

(left to right) Mark Whitworth, Chairman of the Peel Group, Andy Burnham, Mayor of Greater Manchester, John Peaker, Associate Director of Asset and Materials Management at Peel NRE.

Andy Burnham, Mayor of Greater Manchester said:

"Four years ago, I announced my vision to make the Greater Manchester City Region carbon neutral by 2038, a task that can only be achieved by embracing the circular economy.

"This project is at the forefront of that change, and having the opportunity to see this facility up close was invaluable. I enjoyed meeting the Salford-based team and learning about the steps which helped make this recycling project possible.

"The mission which Peel NRE is embarking on to repurpose and reuse material throughout the construction chain is vital in helping the UK achieve net zero."

John Peaker, Associate Director of Asset and Materials Management at Peel NRE added:

"It was a pleasure to show Mayor Burnham our cutting-edge aggregates wash plant which can recycle up to 250,000 tonnes of construction, demolition and excavation waste per year.

"We want to influence the construction industry in Greater Manchester and the North West region to encourage the use of recycled aggregates wherever possible and to establish sustainable construction processes.

"Against a backdrop of high inflation and economic pressures, enhancing recycling in this sector will not only promote sustainability, but also reduce local construction costs for the long term."

Michael Bibby, Business Development Manager at CDE Group said: "Our purpose at CDE is to create our best world, a ton at a time and for NRE Aggregates it is to create a more prosperous and sustainable future for all. To that end, our two companies are both intently focused on building a greener tomorrow, so there is a lot of synergy underlying the partnership."

NRE Aggregates is working with industry experts and partnering with the next generation of innovative thinkers in recycling with the aim to continually improve and refine methods to reduce carbon emissions.

Find out more at [www.nreaggregates.co.uk](http://www.nreaggregates.co.uk).





# Innovative plant designed by STADLER for Eco.Ge.Ri recovers value from waste to deliver high-quality recyclables and Solid Recovered Fuel

**Porcarelli Group is an Italian company that operates across the entire waste chain - from collection to transport, all the way to the valorisation of waste as raw materials. Luciano Porcarelli, co-owner of the group with his brother Giuseppe, explains: "Our company was founded over 50 years ago out of the conviction that waste can replace raw materials in industry, safeguarding natural resources." The Group operates five plants with the aim of returning waste into the production cycle, reducing the consumption of virgin raw materials and energy. To date, its plants have recovered over 3 million tonnes of recyclable fractions.**

When planning its Eco.Ge.Ri plant dedicated to the production of Solid Recovered Fuel (SRF) from industrial waste, which was inaugurated in 2022 in Finale Emilia (Modena), the Porcarelli Group trusted STADLER for its cutting-edge sorting technology, its expert design, professional and fast installation, and TOMRA for its advanced sensor-based technology. "We have been successfully collaborating with STADLER since 2012. When we decided to build a new modern plant in Finale Emilia STADLER was the obvious choice," says Luciano Porcarelli. "Its experience in different waste sectors was invaluable to help us design a flexible and robust plant." The Eco.Ge.Ri plant is one of the most innovative facilities of its kind in Europe and diverts from landfill approximately 150,000 tonnes a year of waste that cannot be further recovered.

This project, with Eco.Ge.Ri's innovative vision, STADLER's engineering expertise in the design and construction of custom-made recycling plants, and advanced sorting solutions, demonstrates that waste management can be sustainable and cost-effective, and contribute to preserving natural resources and reducing our overall environmental impact.

## **Extreme flexibility, high throughput, consistently high-quality output**

Gruppo Porcarelli's requirements for the plant were clear: they needed a facility capable of very high throughput with the flexibility to process a variety of infeed materials while maintaining a consistent high quality of the output across the process with maximum recovery of recyclable materials.

STADLER presented an innovative design concept: "We combined our ballistic separators and high-speed acceleration conveyors with film stabilizer, which ensure excellent materials selection and PVC control," says Pietro Navarotto, STADLER Sales Director Italy. The design delivers on all counts: "The plant receives industrial waste from different sources with an input capacity from 20 to 30 tph. It successfully recovers iron, aluminium, multiple types of plastics – PET, PEHD, PELD, PP, PS, PU – paper and cardboard, and of course very high-quality SRF."



The design addressed the challenge of the variability of the infeed materials with two infeed lines, which can be used independently or together, depending on the quality and density of the material. The first line feeds the material to a







STADLER trommel screen for size selection (<60mm; medium size 60mm to 350mm; and oversized >350mm), while the second line has a shredder for size reduction followed by a further STADLER trommel screen for size selection.

Materials in the 60 to 350mm range go through two STADLER STT5000\_8 ballistic separators to sort out fines, 3D and 2D material. This is STADLER's all-rounder, ideal for separating pre-sorted MSW, moderately heavy and heavy materials. STADLER's new high-speed acceleration conveyor with the new STADLER film stabilizer transports the 3D and 2D materials to TOMRA near infrared (NIR) sorters at speeds of 4.5 m/s. Two of the sorters eject plastics with high chlorine values from the 2D stream, while the other two sort plastics for recovery from the 3D stream, and the remaining material goes to SRF. A TOMRA RDF analyses the SRF, checking in real-time the output material quality in terms of calorific values, humidity and product composition to ensure they meet the requirements for usage.

## Smooth and timely commissioning

The Eco.Ge.Ri plant was designed and built in record time, completed on time in just three months. Due to the tight schedule, installation was done while the building was still under construction. STADLER's careful planning and coordination with the construction companies involved on site ensured timely commissioning, with start up on 6 June 2022.

This capacity as a standout benefit in this project for Luciano Porcarelli, who appreciated the most "without doubt STADLER's flexibility in approaching all the difficulties we had building a new plant with different civil companies working at the same time. Their experience in complicated assemblies has been really helpful."

## A successful collaboration

Eco.Ge.Ri is the second plant that STADLER has designed and built for Gruppo Porcarelli: "in 2012 we built a waste treatment plant for the recovery of raw materials and production of SRF, and since then we've had a very successful collaboration," says Pietro Navarotto.

STADLER's approach to designing and building sorting plants with a strong local team backed by its Head Office organization has once again proved effective, as Luciano Porcarelli highlighted: "STADLER managed all the project design from their Italian branch. We really appreciated this local approach because it made the communication between companies much faster and easier."





# Norwich environmental specialist spearheads progressive renewable energy project



**Norwich-headquartered PSH Environmental Ltd has unveiled a pioneering new project to transform waste into a renewable energy source – using only solar power.**

The announcement comes following a significant re-investment into a 12,000ft<sup>2</sup> new building, 40% extension to the yard, new wash plant, solar system, and an UNTHA XR3000C mobil-e shredder which lies at the heart of the facility.

Capable of processing a range of difficult waste materials for alternative fuels, the electric-driven XR3000C runs entirely from solar energy generated by PSH Environmental, on site.

A 90mm screen processes grade C wood down to a homogenous biomass product for a local energy plant, while a 130mm screen can be interchanged in as little as 15 minutes, to enable PSH Environmental to reduce the density of other skip, bulky and C&I wastes, for RDF.

The flexible shredder can also handle other bespoke products — even those notoriously considered economically unshreddable or too difficult to handle.

The plant is now capable of throughputs of 40 tonnes of material per hour, which equates to 80,000 tonnes per annum.

Commenting on the project, PSH Environmental's director Daniel Parker said: "There will always be waste, and it's up to us to process it in the most efficient and sustainable way — that is what we are aiming to achieve here at PSH Environmental. Running a 38 tonne shredder entirely off solar power may seem far fetched, but we've proven it's possible."

Talks with UNTHA began at a shredding showcase in Lancashire, back in 2021.

"We've been collaborating with UNTHA UK for almost two years on this project — once you see the machine in action, you know exactly why you need it," continued Daniel.



"From experience, once you press the start button on a shredder, they're on a route to self-destruct — I mean look at what you're trying to tackle with them. But with the UNTHA XR3000C, you can see it is built to last. This is high quality engineering at its finest, and the level of craft that has gone into manufacturing such a robust and refined machine, is outstanding."

The environmental credentials of PSH Environmental's progressive project are further strengthened via the firm's 'Clean Up to Green Up' campaign in association with Norfolk Wildlife Trust. This sees £1 from every skip hire donated to help restore a square metre of arable farmland into ancient woodland. With customers able to visit the site to see where a share of their money has gone, this supports the sustainability conscience of the supply chain, while ensuring continued reinvestment in the county, and the countryside.

Daniel concluded: "We are PSH Environmental and we take our name seriously — we can't simply talk about caring for the environment, we have to make sure we do. The waste industry is constantly evolving and you cannot stand still. Hopefully this project shows just how progressive waste processing can be."



# Büscher builds a brand new house out of 75% recycled concrete and demolition waste.

**Recycling in perfection, Keestrack plug-in electric crushing and screening at Zero emission converts demolition waste to sustainable construction material...**

The German company Büscher started in 1961 as a concrete plant and their business grew with a recycling company and, among others, a container service. Today, so many years later, they are the first company in the world building a complete house out of 75% recycled construction and demolition waste. The primary raw materials for the load-bearing and non-load-bearing interior wall elements consist of 100% recycled material.

They didn't just prove it is possible but also got approval of the Deutsches Institut für Bautechnik (DIBt) for their process used. The German Federal Association for Building Materials gave their approval for example for crushed sand similar to type 3 to be used in their prefabricated load-bearing and non-load-bearing interior wall elements in exposure classes XC1 and X0 (dry).

### **The recipe for concrete has changed**

In 1961 Büscher made concrete like everybody else; from gravel, sand, cement and water. Today they have changed the recipe and completely replaced sand and gravel with mixed construction and demolition waste to produce load-bearing and non-load-bearing precast concrete elements for interior walls.



Wolfgang & Hans-Jürgen Büscher before the full electric plug-in R3e ZERO impact crusher.

Due to their container service and the recycling company Büscher received a lot of C&D waste which they normally recycled into aggregates for road construction. As this material was difficult to sell and available in high stock quantities the brothers Wolfgang & Hans-Jürgen Büscher started to look how this material could be re-used. So they came up with the idea of using it as a secondary building material after the upcycling process for ready-made concrete and precast concrete parts. In Germany (to date) only <1% ends up in concrete production.







The K4e ZERO connected to the plug out functionality of the R3e ZERO. The complete production train is powered by sustainable solar energy.

A beautiful sustainable idea but it was hard convincing specialists in the field and authorities this could be the future. Getting 100% prefab concrete certified was difficult, and took them 8 years of Research and Development to approval as most people didn't believe it was possible. "Concrete specialists, laboratories and certification specialists were very doubtful this could be done. They all said it is impossible and not legal", says Wolfgang Büscher.

Company Büscher asked researchers from laboratories and universities to scientifically prove what the material is capable of, and what it's not. They gave the parameters on what they wanted to achieve with the material and let them research if it stands the tests.

"By now all scientific research has been done and it shows exactly what is possible with the 100% recycled prefab concrete and concrete elements. The new material functions perfect and the recipe has changed at Büscher" says Hans-Jürgen Büscher.

Prof. Dr.-Ing. Wolfgang Breit of the Technical University Kaiserslautern concludes: "the quality is good because the company Büscher took the right measures from the acceptance of the Construction and Demolition waste, the processing of the material and the use in the prefab concrete and concrete elements".

The main advantage of this certified production process is the low use of resources. Construction waste that is locally available in large quantities and thus reduces CO2 emissions during transport is processed into a sustainable and climate-neutral product. "We want to make our process known nationwide and would be happy if other concrete plants, recycling companies and other interested parties on the subject of sustainable building with secondary building materials contact us. The construction industry is facing a comprehensive transformation. New approaches are necessary so that the building materials used do not end up as waste - we can and are allowed to do this with the Büscher wall," says Büscher managing director Thomas Overbeeke.

It took them 8 years of scientific proving you can sustainable build a house from fully recycled material, even at lower costs. But it took them only 4 months to build the complete 3-family house, build with paint-ready prefab elements. Piping and electricity are all integrated in the prefab panels which have a smooth surface so you do not need any plaster. Now the first house is build out of 100% recycled natural mineral substitutes in the load-bearing and non-load-bearing interior wall elements. And when it is time to demolish it, it will be recycled into new concrete using the Büscher method. A true circular economy in perfection!

It is clear the company Büscher is minimizing the ecological footprint and is looking to close the material cycle for the circular economy. This is also the reason their factory and



The Keestrack electric combination R3e & K4e ZERO seen from the air.

recycling site is powered by solar panels. The choice to use Keestrack crushing and screening equipment is also driven by this idea. Oppermann & Fuss, Keestrack dealer in Germany have advised Büscher which ZERO equipment was the best fit for their applications and capacity. Also choosing the right options is essential in this specific application.

## Zero drive

Obviously a sustainable product should be produced with sustainable production equipment. As the Büscher site is equipped with solar panels delivering up to 323 kW/h of renewable electricity it is used to power the concrete factory but also to the Keestrack R3e ZERO impact crusher and the K4e ZERO screen. Both Keestrack machines are fully electric powered by renewable energy and do not have a combustion engine onboard.

As the electric motors drive most of the mobile crushing and screening equipment and power some necessary hydraulics systems both Keestrack machines run with ZERO CO2 emission. Keestrack is known being an innovator and early adopter for electric e-driven equipment. The majority of the Keestrack product range is available in ZERO-drive.

When plugged in to the grid, like at the Büscher recycling site, where they use renewable energy using photovoltaic solar panels, the R3 and K4 are producing at zero carbon emission. The energy cost will be approximately 152kWh. Operational and maintenance cost will decrease drastically as there is no engine on board to maintain.







Pouring 100% recycled concrete into the casts

## **R3e ZERO impact crusher & K4e ZERO screen**

The innovative technology, its safety features and the design of the R3 impact crusher has won several European design prizes, one of them being the Red Dot award. The very compact and easy to transport impact crusher available in; diesel/hydraulic drive, electric plug-in drive (with onboard backup diesel gen-set) and ZERO drive: full electric plug-in without gen-set backup, has a capacity up to 250t/h.

The Büscher company choose obviously the ZERO versions to minimize the environmental impact as it runs at zero carbon footprint, powered by their own solar energy.

The R3e ZERO is equipped with a vibrating feeder with a pre-screen of 1.200mm x 920mm to optimize crushing results and to minimize wear, an inlet opening of 770mm x 960mm (HxW) and a rotor diameter of 1.100mm and a rotor width of 920mm. The crusher equipped in closed circuit with recirculation conveyor and a precession screen of 3.100mm x 1.400mm produces a defined aggregate product size. The installed wind sifter eliminates contaminations of plastics, wood or paper and the overband magnet separates the metals. The R3e ZERO weighs 32t, and its plug-out of 125A, powers the connected K4e ZERO of 28t.

The K4e ZERO, has a high productivity with a capacity up to 350t/h. The double deck screen box of 4.200mm x 1.500mm, standard heavy duty plate apron feeder and hydraulic adjustable screen angle gives it very good screening



The wall panels and concrete elements used to build the complete "recycled" 3-family house in just 4 months.

capabilities. The numerous available options and screen decks make the K4 suitable for each job. At the recycling site of Büscher they choose to have the fine and middle fraction conveyor at the same side of the screen to improve the accessibility for the wheel loader.

Each Keestrack is designed to have good service access to minimize maintenance and repair times but at the Keestrack ZERO-range there are no engines on-board meaning maintenance is strongly reduced.

Both Keestrack machines at Büscher are equipped with remote controls to operate the crusher and screen from the excavator. They both have an integrated water spray system which can be used in case the production is too dusty. Also both are equipped with a Keestrack-er UMTS system. This telematics software system provides real-time data and analytics. The system enables you to check the location of the machines and if they are working correctly. All aspects of a machine can be checked and if necessary, remote updates to the software can be made. It is possible to run diagnostic tests for all components including the feeder, screen, crusher and conveyors. The Keestrack-er also functions well for maintenance planning by Oppermann & Fuss, helping to keep machines in optimum shape.





# New DX140LC-7K 14 t Crawler Excavator from DEVELON

**Develon, formerly Doosan Construction Equipment, has launched the new DX140LC-7K 14.6 tonne crawler excavator, replacing the company's successful DX140LC-7 model. Whilst the performance and working range are the same as the DX140LC-7, the new machine incorporates many improvements that enhance safety and convenience both for the operator and for working on site, together with a better operator experience, particularly from a maintenance point of view.**



The main improvements on the new DX140LC-7K model include:

- Better maintenance access
- Safer access to the upper structure
- Better rear visibility
- Better right-side visibility
- New dashboard with tablet design, offering faster response

The upgraded serviceability of the DX140LC-7K includes better access to the DEF tank and the fuel refilling hose. This is combined with a much easier approach for the operator to the engine compartment via new anti-slip steps and handrails positioned behind the cab. The anti-slip steps are protected and secured by a new door on the side of the excavator.

The DX140LC-7K also has a new flattened engine cover design that has reduced the maximum height of cover components on the back of the machine from 1285.5 mm and 1320 mm down to a uniform 1070 mm across all of the back of the machine. This now offers much better visibility for the operator both to the rear and to the right hand side of the machine.

## Inside the Engine Compartment

Inside the engine compartment, changes have been made which have facilitated the new lower engine cover, including the repositioning of the PTO (Power take-off) for the rotation pump from the main pump to the engine itself. This has also allowed the size of the aftertreatment system to be optimized and for it to be lowered.

Elsewhere on the DX140LC-7K, Develon has removed holding valves from the main valve for better fluidity. These holding valves on the main valve are not needed in the EU, as they are standard on the boom and arm. This reduces pressure losses and creates less heat in the system. The air prefilter has also been moved for better performance and noise reduction.

## Changes within the Operator's Cab

Inside the operator's cab, there is a new dashboard monitor with a state-of-the-art tablet design. The former hydraulic two-way pedal has also been replaced by an electronic two-way pedal, with a new PE3C electric pedal as a standard feature, together with a simplified hydraulic system.

The state-of-the-art cab on the DX140LC-7K continues to excel in terms of spaciousness and ergonomics, taking operator comfort and ease of operation to new levels. As well as the new monitor, the operator has a high quality seat and more features as standard than other machines on the market, ensuring super controllability and high precision in all applications.



## Other key features in and around the cab include:

- DAB audio (Hands-free calling system and Bluetooth)
- Keyless start (Develon Smart Key) & remote door lock/unlock
- Fully adjustable air suspension seat with heating (with optional cooling function)
- Parallel wiper system and new design pedals
- Improved air flow for defrosting and air conditioning
- 9 x LED work lights as standard/2 more LED lamps as an option
- AVM - Around View Monitor with 360° cameras (option)

The new excavator utilises a smart hydraulic system that offers an improvement of around 30% in attachment work, compared to previous excavator models. This system





applies a smart hydraulic logic for optimal distribution of the hydraulic flow rate when both the arm and attachment are working simultaneously, with a new priority valve and an additional hydraulic line maintaining continuous hydraulic flow to the attachment, even when the arm is being used.

### SPC3 Smart Power Controls

The DX140LC-7K is powered by the D34 4-cylinder Stage V diesel engine providing 86 kW (115 HP) of power at 2000 RPM. The impressive performance of the engine in combination with the hydraulic main valve and the SPC3 Smart Power Controls, provide increased fuel saving. There are four power modes available on the DX140LC-7K and the operator is able to set the power mode (P+, P, S or E) in both one-way and two-way working modes.

### Tiltrotator Mode

There is a Tiltrotator Mode on the control panel in the new excavator, which can be selected to ensure an optimized hydraulic flow and helps to maximize the accuracy of tiltrotator work by eliminating back pressure. This tiltrotator mode is a special two-way flow mode, but it is managed by the EPOS like a one way flow mode, with direct return to the tank in each direction, to avoid back pressure and increase flow and controllability.

### Develon Telematics Management System

The DX140LC-7K is factory-installed as standard with Develon's state-of-the-art Telematics Management System for wireless fleet monitoring. This system offers a web-based fleet management solution which is very useful for monitoring the performance and security of machines and promoting preventative maintenance.

For more on DEVELON, please visit the website:  
<https://eu.develon-ce.com/en/>

#### Brief specifications for the Develon DX140LC-7K excavator

- Bucket: 0.51 m<sup>3</sup>
- Operating weight: 14.6 tonne
- Digging depth (std front): 5635 mm
- Digging reach (std front): 8285 mm
- Digging height (std front): 8660 mm
- Overall width (with 600 mm shoes): 2590 mm
- Height (std front): 2818 mm
- Overall length in travel position (std front): 7680 mm
- Rear swing radius: 2625 mm
- Drawbar pull: 15.2 tonne
- Digging force over bucket (ISO): 10.5 tonne
- Digging force over arm (ISO): 6.2 tonne
- Lifting capacity at 6 m reach: 3.66 tonne
- Travel speed: low range – 2.7 km/h  
high range – 4.6 km/h
- Engine (SAE J1995 net): 4-cylinder D34 Stage V,  
86 kW (115 HP) at 2000 RPM





# Tough Jobs Soft Ride

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ULTRA  
DEEP TREAD



Brawler HPS Soft Ride tires are designed to perform in tough recycling and waste management applications while providing the most comfortable ride within the Trelleborg Brawler range.

The Soft Ride compound combined with Brawler's unique elliptical sidewall apertures delivers higher shock

absorption and reduced vibration ensuring the best possible protection for operators and machines.

Designed with the demands of recycling and waste management operations in mind Brawler HPS Soft Ride delivers the toughness of a traditional solid tire and a ride comfort equivalent to a filled pneumatic tire.



# Trelleborg EMR1031 Tough Earthmover Tire for Loading Operations

**Trelleborg has taken on the challenge to improve earthmoving operations with the addition of its radial tire, the EMR1031, designed to perform on the most demanding terrain, from sand to rock or extra hard surfaces. Manufactured using a cut-resistant compound, the tire features a premium sidewall protector for damage protection and longer tire life, alongside a multi-surface tread design for superior traction.**

Marcello Mantovani, Product Manager Construction at Yokohama TWS, says: "The EMR1031 tire lets earthmoving operators that work in quarries or open pits, construction or landscaping, get a firm grip on the ground, especially when they need it most. It's just one of our premium solutions that help our customers do the heavy lifting, with ease, comfort and less downtime."



Long lasting performance, firm grip, superior control and tire damage prevention all add up to operators improved productivity, excellent stability, and comfort they can count on in the most demanding applications.



The EMR1031 tire has a wide tread contact area which provides up to 7% more stability, with less vibration when compared to a premium competitor. Its cut-resistant compound is 20% more resistant to cuts and wear, reducing machine downtime and resulting in lower operating costs. The deep tread pattern ensures longer tire life, enhanced grip, and boasts a self-cleaning action during use, even on sandy or muddy terrain.

To reduce environmental impact, the EMR1031 tire comes with a retreadable casing, maximizing customers' investment in a sustainable way.



Find out more about Trelleborg EMR1031 tire features here:  
<https://www.trelleborg-tires.com/en/products-and-solutions/construction/earth-moving-tires/wheel-loader/earth-moving-radial-tires-1031>



## Hydrema launches revolutionary Zero-Emission Dumper, DT6, with trusted partner GSV pioneering sustainable construction solutions

**Hydrema, renowned manufacturer of construction machinery, proudly announces the first delivery of its groundbreaking dumper, the DT6, the industry's first zero-emission 6-ton dumper. With this innovative addition to its portfolio, Hydrema is leading the way in providing sustainable solutions for the construction sector, revolutionizing the environmental impact of construction projects.**

Danish rental company, GSV will take delivery of the first Hydrema DT6, which represents a significant milestone in the construction industry's transition towards a greener future. The partnership spotlights Hydrema's and GSV's unwavering commitment to sustainability and cutting-edge technology.

Leif Søndergaard, Head of Sales, Scandinavia, Hydrema says:

"We are thrilled to be able to deliver our very first DT6 to our long-time customer, GSV. This landmark deal marks a significant milestone in our mission to provide sustainable construction solutions. Our partnership with GSV underscores the industry's growing recognition of the need for zero-emission vehicles and the transformative capabilities that the DT6 has."

Henrik Christensen, VP of Fleet & Purchase, GSV says:

"We are excited to be the first to take delivery of the DT6. This purchase aligns perfectly with GSV's commitment to environmental sustainability and showcases our dedication to adopting innovative technologies in the construction sector. The DT6 perfectly suits the changing legislation in the construction sector and we are excited to help our customers reduce their carbon footprint."

### **Key Features and Benefits of the Hydrema DT6 include:**

- **Zero-Emission Powertrain:** The DT6 dumper features an advanced 96V ZF eTrac electric powertrain, eliminating harmful emissions and contributing to cleaner air quality on

construction sites. By leveraging electric technology, Hydrema ensures minimal environmental impact without compromising on performance or reliability.

- **Exceptional Efficiency:** The DT6 combines sustainable operation with exceptional efficiency. Its electric drivetrain delivers instant torque and precise control, resulting in smooth and responsive performance. The dumper's advanced battery management system optimizes energy consumption, enabling longer work cycles and reducing the need for frequent recharging.
- **Reduced Noise Levels:** The electric powertrain significantly reduces noise levels compared to conventional diesel dumpers. This quieter operation benefits construction workers, nearby residents, and the overall construction site environment, fostering improved working conditions.
- **Versatility and Reliability:** The Hydrema DT6 maintains the versatility and reliability that the company's machinery is known for. With its robust design and superior build quality, the DT6 excels in various construction applications, ensuring optimal performance across a wide range of projects.

Jan Werner Jensen, CEO of Hydrema says: "The DT6, our first zero-emission dumper, represents a monumental leap towards a greener construction industry. By eliminating emissions and setting new standards for performance and comfort, it has the power to create safer & healthier work environments."

As environmental concerns increasingly shape the construction landscape, Hydrema's DT6 zero-emission dumper sets a new standard for sustainable machinery. By integrating cutting-edge technology, innovative design, and a commitment to reducing the industry's carbon footprint, Hydrema empowers construction companies to embrace environmentally responsible practices without compromising productivity or profitability.





# Longcliffe invests in second drill rig to increase sustainability

L-R: Dwain Redman – Explosives Supervisor; Gareth Hibbitt – Assistant Quarry Manager; Chris Ogden – Trainee shotfirer; Harry Wanford – Trainee shotfirer Jon Murgatroyd – Quarry Manager; and Nick Thomas – Explosives Supervisor



**Derbyshire-based Longcliffe Quarries Ltd has made a significant investment in a second drill rig for its calcium carbonates quarrying operation, delivering major improvements in efficiency and sustainability.**

The Epiroc rig will be based at Brassington Moor Quarry where the company has access to one of the highest purity limestone sources in the country. Here Longcliffe operates an in-house drill and blast system to extract this material for use in a range of industrial powders for products including animal feeds, fertiliser, glass production and adhesives.

Previously the company's one drill rig was used for both this quarry and its Ryder Point Quarry, two miles away. The rig had to 'track' between the quarries, taking up valuable time (around half a day each time), and using large amounts of fuel. This new, second rig will prevent the need to move rigs between quarries, enabling Longcliffe to achieve improved efficiency, reduce fuel use and save on the cost of replacement tracks.

Longcliffe's Brassington Moor Quarry Manager, Jon Murgatroyd said: "This investment will deliver significant improvements on our operational efficiency and environmental impact. In addition to achieving savings on time and fuel, the rig will also help us with better utilisation of the rock on the ground."

The new rig will be operated by the highly experienced in-house team of driller, Paul Hadfield; and shotfirers Nick Taylor, Dwain Redman, Harry Wanford and Chris Ogden.

The process for blasting in the quarry begins with laser profiling the faces, then blast designs using 3D modelling. Finally, a comprehensive GPS system is used by the driller to position the rig to pinpoint shot locations to match the computerised plan.

Longcliffe Managing Director Paul Boustead added: "We are pleased to take delivery of this second drill rig. We are continually looking for ways to increase the sustainability and efficiency of our operations. Moving our original rig between sites was challenging and costly and we can see already the benefits of having a dedicated rig in each of our quarries".

Area Sales Manager for the rig supplier, Epiroc, Jason Reilly said: "Epiroc's ambition is to produce the world's greenest machines, to enable our partners to mine minerals in the most sustainable way possible, whilst improving safety, productivity, and machine availability even further. So, we are delighted that the team at Longcliffe have ordered another Epiroc FlexiROC D55, in their chosen corporate colours, complete with a ROC-Care service agreement, demonstrating the close working partnership and shared commitment to sustainability between our two companies."



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# TOTAL SCREENING SOLUTIONS



# Justifying Conveyor Upgrades Part 2: Ensuring a Positive Outcome

R. Todd Swinderman, P.E. / President Emeritus / Martin Engineering

**In Part One of this two-part series, we covered how supervisors or managers in charge of writing proposals for upgrading conveyor equipment could create persuasive arguments and set real-world expectations for the capital expenditure. Part Two is intended to ensure that the proper data is collected to justify the project and build trust with stakeholders so future proposals will also be accepted.**

"Collecting the proper data and presenting convincing arguments is almost an art form," said Dan Marshall, Process Engineer at Martin Engineering. "The first few times you do it can be frustrating and tedious. But reviewing some of the company's past proposals -- including those that were rejected -- is always educational. Working with the manufacturer of the proposed equipment can also be extremely helpful."



Project planning can be time-consuming, so schedule quiet desk hours to focus.

## Choosing the Right KPIs

Measuring performance requires data, so determining the most relevant Key Performance Indicators (KPIs) is important. These measurements help create evidence for stakeholders so they can make informed budget decisions. From a single piece of equipment to an entire project involving multiple components, KPIs should be part of any strategic process to assess performance and help set objectives. Often displayed in graphs or charts for visual effect, performance measurements relay trends and progress related to a goal that can be easily recognized and absorbed.[1]

There are two types of KPIs, leading and lagging. Leading KPIs are those that indicate future problems which can cause expensive unscheduled downtime, such as Mean Time Between Failure (MTBF). Lagging KPIs are those that happen during or after downtime, such as "reactive maintenance." Keep in mind that KPIs require a reasonable period to collect the data, sometimes stretching across an entire year or more. Benchmarks by which to measure the failure or success of the performance metrics are essential.

## Common Types of Bulk Handling KPIs:

- 1) **Unscheduled Downtime** – Labor and servicing during an emergency shutdown are estimated to be three to seven times more expensive than scheduled downtime when workers are not pulled from other essential duties and contractors have time to offer competitive estimates. For example, just a one-percent difference in system availability for a coal-fired power plant could be worth one to two million US dollars in annual revenue. The cost of even the shortest unscheduled outage is prohibitive.  
  
When calculating the cost of downtime, common expenses to include are:
  - A. Lost opportunity cost (missed sales, supply line impact, etc.)
  - B. Purchase of replacement components
  - C. Maintenance labor
  - D. Subcontractor labor
  - E. Consulting and engineering fees
  - F. Testing and analysis
- 2) **Labor Costs and Fees** – Although these are included in determining the cost of unscheduled downtime, they are both leading and lagging KPIs, essential budget line items to determine the viability of any pending project. All maintenance related to the targeted project component(s) should be logged, including servicing of the system leading to and from the component(s).
- 3) **Direct and Indirect Costs** – Direct costs can include labor, but generally also cover replacement equipment, contractor costs, production losses and injuries. Indirect costs are investigations and settlements as a result of injuries or accidents, increased energy usage, increases in insurance premiums, MSHA or OSHA fines and qualitative costs like poor morale, etc.
- 4) **MTBF** – Mean time between failures is the average uptime between unscheduled outages. It is a vital performance metric to measure safety and equipment design and aids in determining new equipment's return on prevention (ROP) as compared to existing equipment.[2] ROP is an abstract representation of the potential economic success of occupational safety and health. Equipment with a better ROP is generally higher quality, with less maintenance required. It can be expected to carry a somewhat higher purchase price, so MTBF is key to justifying the cost and safety benefits.



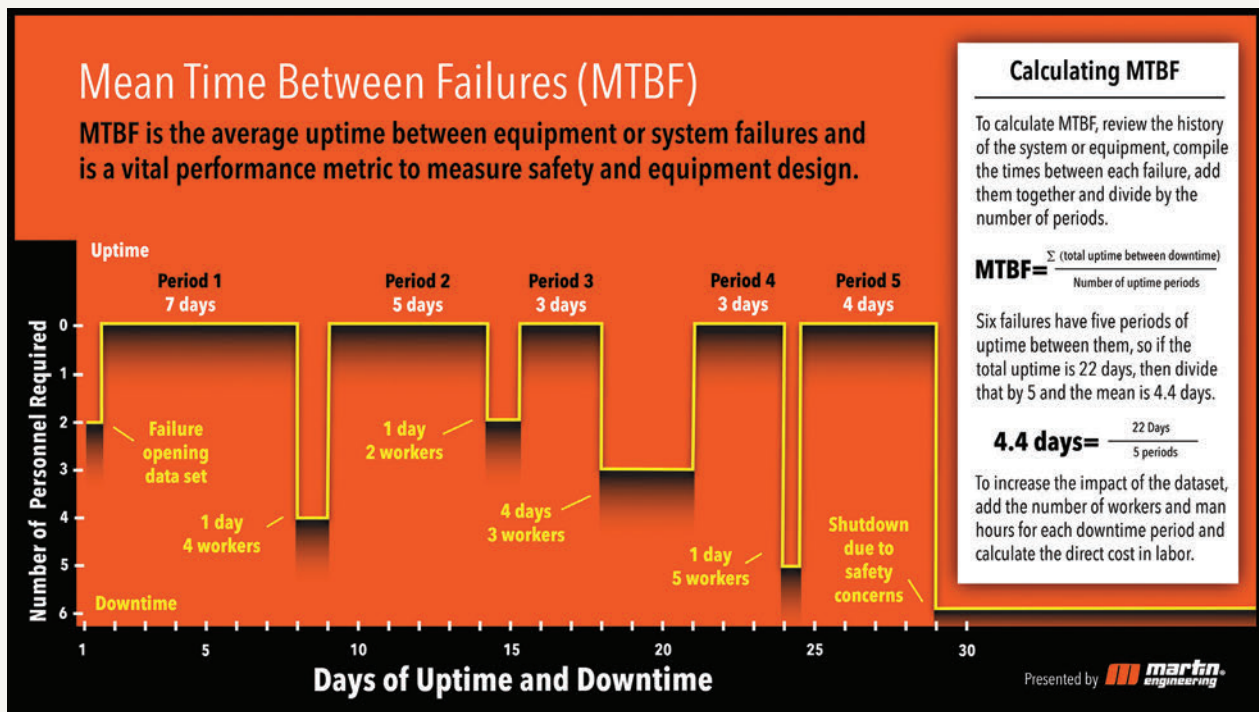


Figure 1 – MTBF calculated over a sample period.

$$\text{Opportunity Cost} = \frac{\text{tons}}{\text{hour}} \times \text{Unplanned Downtime (hours)} \times \left[ \frac{\text{Sales(\$)}}{\text{ton}} - \frac{\text{Cost of Sales(\$)}}{\text{ton}} \right]$$

Figure 2 – Opportunity cost calculation.[2]

To calculate MTBF, review the history of the system or equipment, compile the times between each failure, add them together and divide by the number of periods. For example, six failures have five periods of uptime between, so if the total uptime is 22 days, dividing that by five makes the mean 4.4 days. To increase the impact of the dataset, add the number of workers and man-hours for each downtime period and calculate the direct cost in labor. [Fig.1]

- 5) Opportunity Cost – Opportunity cost is the value of production lost due to unscheduled events such as machine breakdowns, shutting down to clean up fugitive material or safety incidents. The concept is that if the product is not available for processing, and therefore sale, a profit opportunity is lost. [Fig.2]

### Project Management

The success or failure of a project can come down to good project managers. They manage the schedule and budget to ensure that work is completed on time, and on budget. Establishing reasonable and clear expectations for co-workers, vendors and subcontractors helps ensure the quality of the finished product. Some manufacturers offer conveyor inspections and cleaner maintenance as part of a managed service relationship. Their monitoring systems can track component wear and update the service technician and/or operations personnel via wi-fi or cell phone on upcoming service needs. Some new systems can even adjust belt cleaner tension automatically, and the technology will also send an alert through a mobile app in the event of upset conditions.

Factory-trained service technicians provide an added set of eyes on the conveyors, travelling to and from the equipment to

be serviced and logging details in their service reports. Because they see so many different applications, they can often alert on problems that maintenance personnel don't see or have become accustomed to ignoring. With factory-direct managed service, the responsibility for maintenance falls on the manufacturer, allowing the staff to focus on other priorities.

At first glance, it may seem that a plant has the in-house capacity to maintain belt cleaners, and hiring a managed service provider doesn't make sense. The reality is a conveyor will run with a belt, a head and tail pulley and a drive – maintaining everything else can be put off (and often is) for production at any cost. A "run until broken" philosophy means more than non-functioning equipment – it can increase unplanned downtime, exacerbate financial issues and affect worker morale, too. Then, in the rush to patch things together, maintenance workers are tempted to take shortcuts and work around established procedures, exposing them to greater potential for injury. In contrast, a service contract that employs factory-trained technicians will often result in problems being identified before they become catastrophic failures, reducing downtime and further equipment damage.

Factory-trained direct service personnel and replacement parts are key to obtaining expert maintenance for optimum performance and component life, leading to on-time deliveries and high customer satisfaction. Some manufacturers will even supply free remote monitoring and reporting equipment that's accessible by wi-fi or cell phone. These managed service technicians, supported by a financially stable, well-established manufacturer and armed with the specific knowledge and equipment to do the job, are often the answer to common belt





Trained service technicians identify when equipment needs servicing and give reasonable timelines and budget.

cleaning problems. For these technicians, who spend every day assessing and servicing belt conveyors, maintenance and repairs become more of a precise science than a judgement by rule of thumb.



Regular inspections by factory-direct professionals help minimize downtime and improve efficiency.



Collaborating with factory-trained technicians delivers the most economical solutions.

## Safety Justifies Success

If the argument for workplace safety is made clearly and robustly in the proposal, then showing significant safety improvements after the project has closed is always a top-tier outcome. Overseeing the proper installation of high-grade equipment that achieves what it was engineered to do should yield a positive outcome, barring any major unforeseen catastrophe.

The key is to work closely with the manufacturer or engineering firm, monitor results closely, and address issues early. Regularly-scheduled reviews of conveyor belts, cleaners, tracking, chutes, dust control and other components from experienced specialists with extensive training and expertise will help conveyor operators maximize productivity and reduce downtime.

"The earlier service technicians are brought into the process, the more they can assist," Marshall added. "We often walk the belt and inspect conveyor systems along with operators to find practical solutions that can help define their KPIs, narrow the scope of data collection and get them to their goal faster and more safely."

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- [2] Swinderman, R. Todd; Marti, Andrew D.; Goldbeck, Larry J.; Marshall, Daniel; Strebel, Mark G.: Foundations for Conveyor Safety; First Edition; pg. 451; Martin Engineering; Worzalla Publishing Company; Stevens Point, Wisconsin 2009. <https://foundations.martin-eng.com/foundations-4-book-download>





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# Campbell Contracts boosts productivity following CDE plant upgrade

**Water management solution delivers six figure boost in savings and new revenue...**

**For nearly 40 years, family-owned business Campbell Contracts has been extracting sand and gravel from its Letterbailey quarry in County Fermanagh, Northern Ireland. More recently, in response to market demand, the company commenced blasting to increase the supply of its sand, gravel, decorative gravel, crushed rock, rock fill and screened topsoil.**

In 2019, the Campbell family partnered with CDE to support them to grow the business and diversify its portfolio of high-quality quarried aggregates. The final solution allowed the company to process three new materials it previously categorised as waste from its quarrying operations: clay-bound sand and gravel, primary scalpings and crushed rock fines.

## **The problem with ponds**

Increased tonnage, however, and subsequent pond maintenance resulting from Campbell Contracts expanding its operations put additional pressure on labour availability on site.

In pursuit of a solution, a detailed site audit conducted by CDE engineers revealed pond cleaning was consuming up to 15% of total operational hours and that improved water management practices would help to alleviate labour pressures.

Following a competitive tender process, CDE proposed its AquaCycle™ thickener for primary stage water management to efficiently manage silt content and address the shortcomings typically associated with settling ponds.

Delivering competitive advantage to its customers, CDE's AquaCycle accelerates return on investment by maximising production efficiency, improving output product quality and reducing water and energy costs.

Traditional wash plants use a series of ponds to recycle water and for the natural settlement of suspended solids and silts. As wash plant technology has advanced and tonnages have increased, the area needed for settlement ponds has dramatically increased and these are often a source of significant operational and logistical challenges.

Accounting for the increase in material throughput alongside fuel and labour costs, ongoing pond management costs £5 per tonne on average.

CDE's technical pre-sales manager William Melanophy said: "We consistently invest in research and development with the aim of enhancing the capabilities of our water management and recycling equipment, and the AquaCycle – a single, compact and user-friendly unit that can be applied to high and low tonnages across many markets – is at the forefront of this effort."



## **Proven water management solutions**

An alternative to water extraction and the costly process of pumping water to the plant, CDE's AquaCycle minimises water consumption by ensuring up to 90% of process water is recycled for immediate recirculation.

After feed material has been washed and classified, waste is sent to the AquaCycle thickener tank. Here, a small amount of polyelectrolyte flocculant is added to the water via an automatic dosing station which forces fine particles to settle on the bottom of the thickener tank. It helps to maximise the settlement of solids in the smallest possible space as waste sludge is thickened and discharged to the holding pond, resulting in a lower total volume of material being sent to the pond which drives down maintenance costs and manual labour requirements.

CDE business development manager Fergal Campbell said: "Our AquaCycle solution pumps directly to final remediation areas, meaning sludge does not have to be handled or transported. As well as increasing operational efficiency, it has helped to reduce labour and silt management costs while also extending pond life. This allows the Campbell Contracts quarrying division to better manage its labour resource by redirecting its team to high priority and value-adding tasks."

## **Six figure boost**

Within the first year of operation, the reduced maintenance requirements and increased productivity enabled by CDE's AquaCycle have contributed significantly to the company's bottom line, driving down costs and supporting revenue generation.

"We are extremely happy with the results of our latest partnership with CDE," Grainne Quinn, director of Campbell Contracts said.

"CDE's AquaCycle has greatly improved operational efficiency on site which has allowed us to focus on generating new business and better serving our customers. The impact is unquestionable. We're estimating the combined cost savings and new revenue brought about by the solution to be worth six figures to the business."

For more information about CDE and its water management systems, visit [cdegroup.com](http://cdegroup.com)





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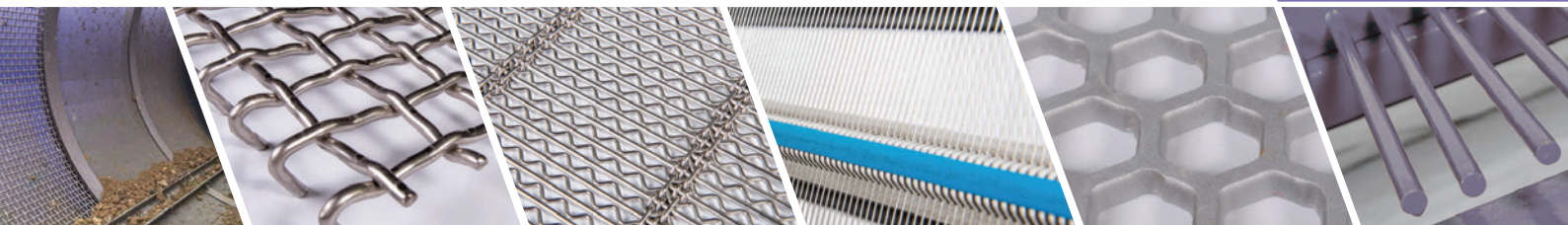
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# Linatex® Premium Rubber, leading protective lining for abrasive applications, celebrates 100 years of outstanding performance and reliability

**Linatex® Premium Rubber, manufactured solely by Weir Minerals Malaysia, is celebrating its 100-year anniversary as the industry leader in defence against abrasion. The distinctive red rubber, renowned for its resilience, strength, resistance to wear and abrasion, offers exceptional performance in the harshest of mining and aggregate environments.**

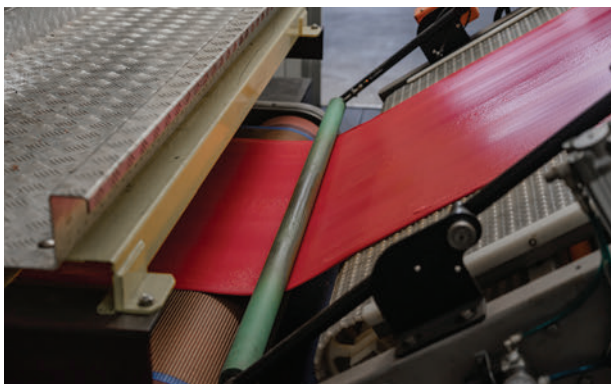
Linatex® Premium Rubber has been field-tested in mine sites for a century, starting with the tin industry in Malaysia in the 1920's and continuing to the present day. Found in all the leading operations globally, it is the mining industry's preferred first line of defence and protection against abrasion for expensive capital equipment - delivering best-in-class wear life and overall total cost of ownership.



The state-of-the-art new facility in Malaysia houses the proprietary Continuous Rubber Process, unique to Linatex® rubber products.



Linatex® Premium Rubber features a unique liquid-phase compounding process.



At the end of the liquid-phase compounding process, the rubber is prepared for the next stage of the sheet manufacturing process.

### **Brandon Greer - Processing Maintenance Supervisor, Pinto Valley Mine, Capstone:**

"I would definitely recommend the Linatex rubbers to really any mine. The life that we've seen is just phenomenal in comparison to what we've had in the past."

### **Akhbayar Enkhsaikhan - Concentrator Maintenance Manager, Oyu Tolgoi Mine**

"It significantly reduces material costs associated with changing out too frequently. On the cost side, most importantly, it enabled us to produce more copper."

Weir Minerals Malaysia is the sole producer of Linatex® Premium Rubber in the world. Dedicated to meeting customer demand and providing the most advanced solutions, Weir Minerals is continually working to modernise the manufacturing process. The rubber manufacturing facility, located in Batu Caves, Malaysia, has been expanded to include a new Continuous Rubber Process (CRP2) facility, a new Banbury mixer to manufacture masticated dry rubber and additional rubber presses to support the growth within this area of the business.

The proprietary formula of Linatex® Premium Rubber includes a unique liquid compounding phase which maintains the natural state and characteristics of the 95% natural rubber product. The formula has remained unchanged since it was developed and patented in 1923 by Bernard Wilkinson. To ensure a consistent high-quality product, Linatex® Premium Rubber routinely undergoes rigorous testing throughout the entire manufacturing and delivery process.

Linatex® Premium Rubber is the most sustainably manufactured rubber on the market. The natural and renewable resource (pure latex is 100% sap of the rubber tree) is complemented by sustainable processes, minimal waste and a renewable solar energy system at the site.

Stephen Frendt, Managing Director Weir Minerals Malaysia: "Linatex rubber is a very sustainable product. Firstly, it's a very natural product based on 95% natural rubber latex. Secondly, the process in which it is manufactured is very sustainable: very little effluent, very little waste. More broadly across the site, we have implemented a range of sustainability initiatives such as solar panels, rainwater harvesting and a rubber recycling program."

Charlie Stone, VP Sales and Business Development: "We are thrilled to celebrate a century of delivering leading value, performance, and sustainability benefits to our customers around the world. Linatex premium rubber is unparalleled in the industry and we look forward to another successful 100 years and more."

Learn more about Linatex® 100 years at: [www.linatex100.weir](http://www.linatex100.weir)



# SCS - Fostering Long Lasting Relationships

**At SCS, our commitment to cultivating enduring customer relationships has paved the way for numerous successful collaborations. Recently, one such relationship blossomed with Aggregate Industries Bardon Hill, one of the largest inland quarries in the UK, an introduction was made when SCS bought out an existing supplier to Bardon Hill. To start off the relationship Bardon Hill trialled SCS's Rubber Screen Cloths against existing and previous suppliers. Through the utilisation of top-quality materials and workmanship, these screen cloths surpassed all competition, marking the beginning of a fruitful partnership.**

After the initial success both parties were keen to build on the relationship and Bardon Hill were interested to see what other products SCS could offer. As one of SCS's core product lines is polyurethane modules, Bardon Hill evaluated price, lead time and quality on various spares orders with more than satisfactory results. When the time came for refurbishment of a derelict screen's polyurethane screen media SCS were well positioned to advise, supply, and install all that was needed to help the site complete this project successfully.

## **Further Strengthening Customer Relationship**

Impressed by these initial successes, Bardon Hill entrusted SCS with resolving a problem concerning one of their primary scalping screens. Challenges such as excessive part weight, high cost, lengthy lead times leading to large and costly stock holding plagued the quarry. Leveraging our wealth of expertise garnered over decades of experience in the quarrying sector, SCS developed a bespoke design of self-supporting panels that utilised the existing framework and fixing holes, therefore enabling the conversion to be a simple matter of bolt on bolt off with no structural alterations. The panels are all constructed from a high grade cut and wear resistant rubber, which has

proved itself time and time again to be the best material for heavy duty dry screening operations, with a laser cut steel backing plate for strength and separate heavy duty rubber runner bars.

Trials commenced, and after careful monitoring once again, the trial was a triumph, efficiently addressing the identified issues. By providing a system with the heaviest part reducing from 95kg to 43kg this has led to much safer manual handling. When designing the system SCS limited the design to only utilise materials stocked at SCS or available locally thus reducing the lead time from over 6 months from goods manufactured overseas to approximately 4 weeks. The modular design of the new system helped to reduce stock holding by a third and with interchangeable parts the service life of the panels can be increased, again reducing costs.

## **Further Optimisation and Utilisation**

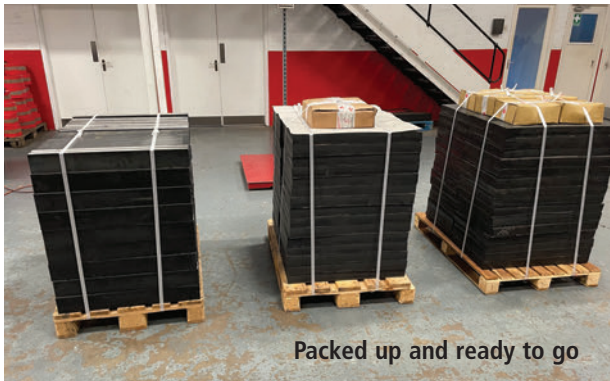
When it came time for Bardon Hill to replace this scalping screen, SCS were grateful to be chosen to supply and install screen media for both decks. SCS recognised an opportunity to refine the design even further, so the number of panel designs is now half the original amount but still ensuring all existing panels could be utilised to negate waste. The install also required the supply of steel backed rubber side liners, in true SCS fashion there was only one design of side liner for each of the decks and both types can be rotated to get maximum service life out of them, manufactured from SCS's stock of 25+5mm thick steel backed rubber these completed the installation perfectly.

This scalping screen also has a sister screen which utilised a very similar version of the original panel design, so when stocks of the panels were running low SCS were asked to see if the new system would work on this screen. After visiting site and diligently checking the screen it measured up exactly to fit the new panel design, with only a change to the configuration of the system to suit the screens application.



Trial panels installed





Packed up and ready to go

The bottom deck of this screen had a similar system with all the same issues but due to the separation size, it was decided to convert it to Rubber Screen Cloths for ease of maintenance, availability, and cost. This was achieved by a clever design of sectional screen frames that simply bolted onto the existing cross beams. With great cooperation, all preparation was completed on a night shift by site personnel and allowed SCS to complete the installation in a day.

The following comments were received after this work was finalised "a job that went extremely well and to plan." Martin Argyle, Night Shift Maintenance Manager.

"A fantastic job carried out diligently and professionally. My thanks to you and the wider team at SCS." Ashley Bowyer, Engineering Manager.



## A Solution not just a Supplier

The success of SCS in collaborating with Aggregate Industries Bardon Hill exemplifies the power of nurturing long-lasting customer-supplier relationships. By leveraging wealth of knowledge and experience, SCS provides innovative solutions to address challenges within its scope of expertise. SCS's commitment to honest advice, excellence, and cost-effectiveness, continues to allow SCS to foster enduring partnerships.

If you are looking for technical advice, a tailor-made solution for your screening or lining requirements, or further information, contact us today on [sales@scsrugby.co.uk](mailto:sales@scsrugby.co.uk) or on 01788 553300.





# New Rapid Concrete Batching Plant doubles outputs for Hoddam Contracting

**Rapid International Ltd (County Armagh, Northern Ireland) has recently supplied Hoddam Contracting Co Ltd with a new bespoke static concrete batching plant, located near Dumfries, Scotland. The plant is capable of production of up to 70m<sup>3</sup> per hour of ready mixed concrete.**

Hoddam Contracting Co. Ltd, a family-run business headquartered in the south of Scotland, has been serving the concrete industry for over seven decades. Also known as Hoddam Quarry and Concrete Products, this longstanding supplier has cemented its position as a leading provider of building materials in the region. Hoddam supplies a wide range of quarry materials, concrete products and services to the building, industrial, agricultural and domestic markets, including ready mixed concrete.

With two sand and gravel quarries already in operation they have just opened a hard rock quarry, and are well-positioned for growth in the area. In addition, their concrete production and head office facilities are situated in Ecclefechan, further strengthening their presence in the south of Scotland.

### Addressing the need for an upgrade

As a long-standing customer, Hoddam had previously invested in three batching plants from Rapid. However, the existing batching plant at their Dumfries site, responsible for producing ready mixed concrete, had surpassed its two-decade service life and required a significant upgrade.

### The Rapid solution

Rapid worked closely with Hoddam to develop a solution that would optimise their concrete production process. Drawing inspiration from one of the company's existing batching plants located in Ecclefechan, Rapid proposed a similar design tailored to Hoddam's specific requirements.

The new plant has four 50 tonne aggregate hoppers, with integral 800mm weighed belt conveyor, which discharges onto a batch conveyor. This conveyor subsequently feeds the 3m<sup>3</sup> output Rapid R300 pan mixer, which is housed in a fully sheeted mixer platform. The platform allows for maximum access for maintenance and cleaning, with mixer level and small upper access area at the cement weigh hopper. A dust extraction system is fitted to the mixer, to recycle dust for reuse in subsequent batches.

Readymix chutes are located under the mixer doors to direct the material into the truck mixers. The chutes are lined with 6mm Hardox plate to offer long wear. Moreover, a movable chute extension has been incorporated, allowing for greater



flexibility in directing the concrete to different levels, such as trailers, catering to the requirements of collect customers.

Cement is stored in a 100 tonne storage silo, with screw conveyor, which conveys material from the silo to the weigh hopper. A 2 tonne cement/powder weigh hopper is included, which is mounted on loadcells with aeration pads and a vibrator to aid in discharging. The plant also features a twin compartment additive weigh system, which offers flexibility in additive batching.

To streamline mixer cleanout, the plant includes a Rapid Jetwash mixer washout system, fitted with 3 spray heads. The system operates at 2000 psi, offering high-pressure cleaning and maintenance of the mixer.

### Enhanced Control and Productivity

The plant is fitted with a Pneutrol Dynamix batching control system, which enables the operator to oversee the entire batching process and offers unlimited recipe storage, manual control via the PC and remote operation.

### New plant doubles outputs


Commenting on the new plant's outputs, Laura Gilfillan, Director – Hoddam Contracting, said, "The new batching plant works a lot faster and batches more than twice as much per hour." She continued, "We find the whole Rapid team a pleasure to deal with, at all stages of the process, from Victor in sales through to Keith in installation. The build quality and overall service and aftercare is very good. We can just pick up the phone and speak to someone, which is invaluable."







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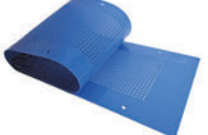







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