



ADVETEC

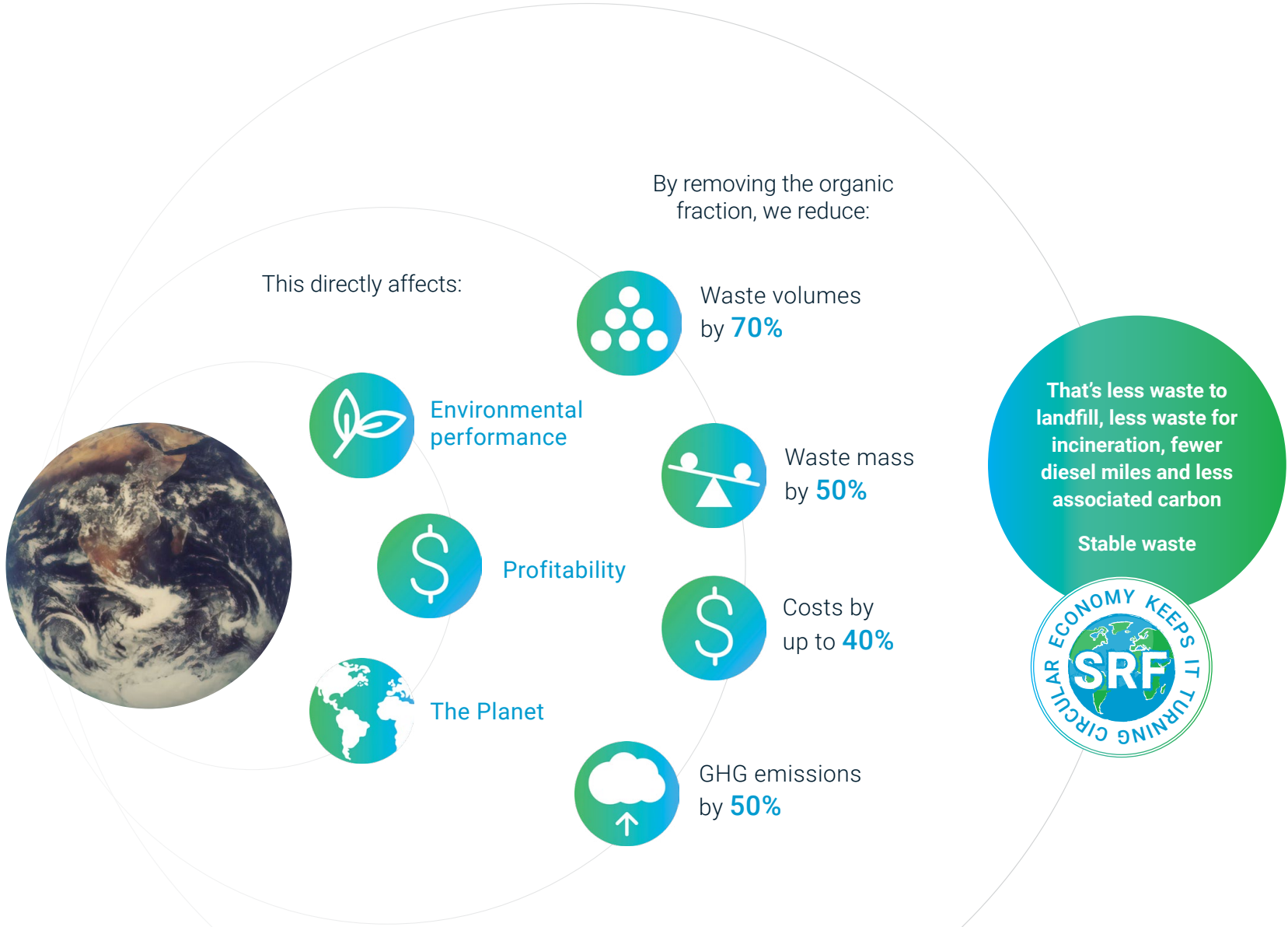
A global change starts with a local solution

An aligned waste strategy to face the future

- ✓ **50%** solid waste mass reduction
- ✓ **OVER 50%** GHG emissions reduction
- ✓ **ZERO METHANE** emissions
- ✓ **COAL REPLACEMENT** product production
- ✓ **BENEFIT** the Circular Economy, ESG Strategy & STARS rating



FACT: Organic matter contaminates waste



Our technology

We have developed a very effective way of aerobically digesting organic matter using unique blends of bacteria. Solid Waste that cannot be recycled due to contamination with organic matter, turns into Solid Recovered Fuel (SRF) that can be used as a fuel replacement.



50% waste mass reduction & landfill diversion

Our technology enables our customers to reduce waste mass by 50% within 48-72 hours.

As part of our process, we collect waste samples and have them independently characterized to establish the predicted waste mass reduction and operational cost savings.



Lower and stabilize waste management cost

We work with a network of SRF offtakes to offer our clients a reliable service and a sustainable alternative to conventional incineration and landfill.

We understand how important it is to have a smooth, consistent and safe operation.



GHG emissions reduction

By having less waste, we can reduce the number of truck pick-ups required for disposal. Additionally, turning waste into floc helps us reduce GHG emissions and be true to the zero methane pledge.

By processing waste into floc, we not only reduce the amount of waste going to landfills or incineration but also significantly reduce the amount of GHG emissions released into the atmosphere.



Improved ESG strategy & STARS rating

Turning solid waste into Solid Recovered Fuel (SRF) creates an opportunity to further contribute to the Circular Economy, and speed up the journey to Zero Waste to Landfill.

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Our biotechnology-led solution shows that there are more innovative and cost-effective ways to process waste – reducing its mass and volume by 50% and 70% respectively, improving its stability, and reducing the associated cost and carbon emissions. We are helping waste handlers to save money and bring them financial certainty, which means they don't need to pass rising costs onto their customers.

“This will bring vital and timely relief to waste operators - creating extra waste-handling capacity and proving there is an alternative to incineration, landfill and waste exports.

Jim Lovett,
Chief Executive Officer

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Floc and Solid Recovered Fuel explained

Feedstock



Floc Output



What is floc?

Floc is a homogeneous, dry and odorless post-process waste material. Typically it has a moisture content lower than 15%, with organic matter reduced significantly during aerobic digestion process.

Depending on the waste stream and customers' requirements, the FLOC can be used as Solid Recovered Fuel (SRF) or have further value extracted.

What is Solid Recovered Fuel (SRF)?

A high-yield source of energy for producing heat and electricity, as well as an exciting waste disposal alternative.

SRF is a fuel produced by refining waste including shredding and dehydrating solid waste and it offers a way to recover a significant proportion of ordinary household and industrial waste.

The materials used to produce SRF pass through a series of shredders, screens, density separators and magnets. Materials such as debris, recyclable plastics and metals are extracted from the shredded material, leaving a mix of mainly non-recyclable paper, card, wood, textiles and plastic. Although a small proportion of these materials can be recycled, the quality of these materials is compromised once they enter the residual waste stream, as there may be organic matter present, for example. Therefore, recovering energy from these materials is currently the best environmental option.

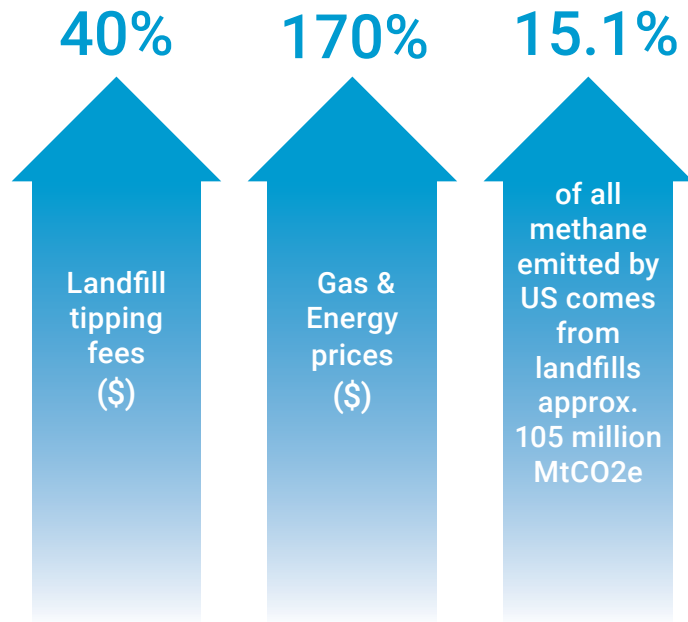
In Advetec's case, the process of creating SRF is even more pioneering. When Solid Waste (MSW) goes through our aerobic digestion process, the resulting floc is dry and more homogeneous with little organic matter and a high quality material. It's such high quality that it can go on to be used as a SRF and is therefore more suited to energy efficient thermal processes. It could be used to replace carbon-emitting coal to power a cement kiln, in pyrolysis to mine it for useful chemicals or for gasification. In giving waste greater value through this process, the circular economy benefits. It reduces waste, recovers resources and uses them for greater endeavor – it's reduce, reuse, recycle in action.

Saving money where it counts

With a network of SRF offtakes and fewer transportation required, we deliver real savings to our customers.

A spotlight on the numbers

Waste management costs have continued to rise year on year for the last decade; a trend that shows no sign of slowing down.



It's about time the industry had a shake up then, we'd say?

By working in partnership with our customers, they're able to achieve up to



40%

Overall cost savings enjoyed by our customers on average; further future cost stabilization through SRF and circular economy.



↑
SRF output



↓
50%

Reduction in waste mass

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Faced with rising operational costs, labour shortage, taxes, higher offtake rates and the increasing cost of waste exports, waste handlers urgently need financial certainty and a realistic alternative that protects the future of their business and that of their customers.

Our aim is to provide our customers with a great local solution that has a real world impact.

Lee Knott, Chief Commercial Officer

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Adding value to your enterprise: ESG and circular economy



No greenwashing here – turn your waste into a commodity.

Solid or Residual Waste, whether commercial or domestic, is often contaminated with organic material, so it cannot be recycled in a traditional way. It ends up being burnt or buried.

By treating waste with Advetec XO technology you can dispose of the waste as Solid Recovered Fuel (SRF) which has a significantly lower environmental impact and benefits the Circular Economy.

As a data-driven environmental company, we will give you the tools to calculate the change within your waste minimization and diversion as well as GHG emissions, showing a positive change you make.

ESG Strategy and environmental credentials such as STARS rating are increasingly at the top of our customers' agendas, we can make you stand out in the crowd.

Greener alternatives and innovative technologies can give a competitive advantage that quickly turns into higher staff retention rate and improved students intake.

The ability to offer a reliable service that positively affects green credentials and carbon footprint has become a smart business practice.



Thermal hierarchy

We have worked with independent consultants to map out the thermal hierarchy for waste to demonstrate how moving up the thermal hierarchy reduces environmental impact and carbon footprint.

Through a continuous R&D program, we strive to develop ever greener off takes for the floc to be further reused and recycled.

Impact on Thermal Hierarchy - Today



Solid Recovered Fuel



Mixed Residual Waste



Using 1 ton of SRF (floc) means that circa. 0.5 tons of coal can be replaced from the production of cement.

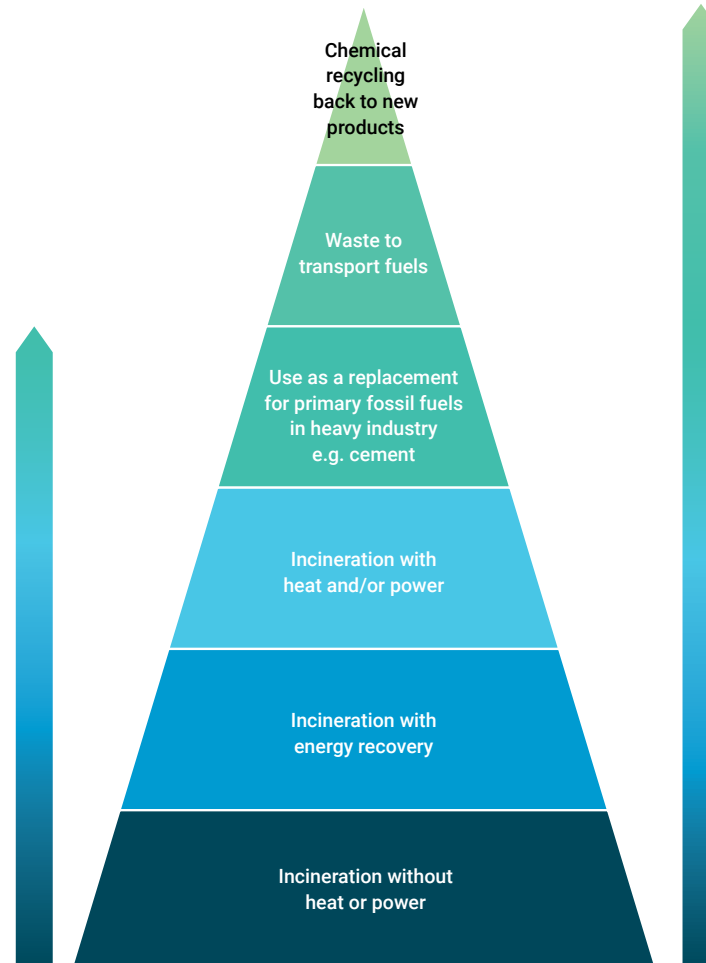
For every ton of SRF used circa. 1.2 tons of CO₂ from the use of virgin fossil fuel is avoided.

2T MRW = 1T SRF (floc)

1T SRF = 1.2T CO₂e SAVED

1T SRF replaces 0.5T coal

*MRW = Mixed Residual Waste



Impact on Thermal Hierarchy - Future proofing



Recyclates



Solid Recovered Fuel



Solid/Residual Waste

Future-proofing waste business

As a dynamic, innovative, data-driven business we continuously seek to understand more about our customers' needs. This drives our R&D programme.

Our R&D program has included a number of full-scale waste processing trials including waste characterisation, waste processing and floc analysis in collaboration with a large commercial waste processing site in the Republic of Ireland.

It is expected that the trials will demonstrate that the output from certain feedstocks can be used as a valuable soil improver that can be recycled back to land to replace lost nutrients and add valuable organic matter to protect the soil from erosion.

A spotlight on the numbers

The figures below set out the results for the performance of the XO6 unit used at a commercial location facility to process MSW organic fines.

Mass reduction

Total Input	Total output	% Reduction
21.26 tons	11.37 tons	46.5%

Results for feedstock and floc Respiration Activity after 4 days (AT4) and Moisture content to highlight the reduction in each category.

Source Parameter	Floc	Reduction	<6mm Screened Floc
AT4 mg O2g DW	4.04	11.79%	3.56
Moisture	3.9%	91.31%	7.8%

As part of our R&D, we have screened the floc down to 6mm. The smaller than 6mm fraction, which comprises mainly organic fraction, has been independently tested for AT4 compliance. The results demonstrated that even the most organic fraction within the floc has been successfully stabilized and complies with the Respiration Activity after 4 days AT4 limits which means that the material will not break down any further.

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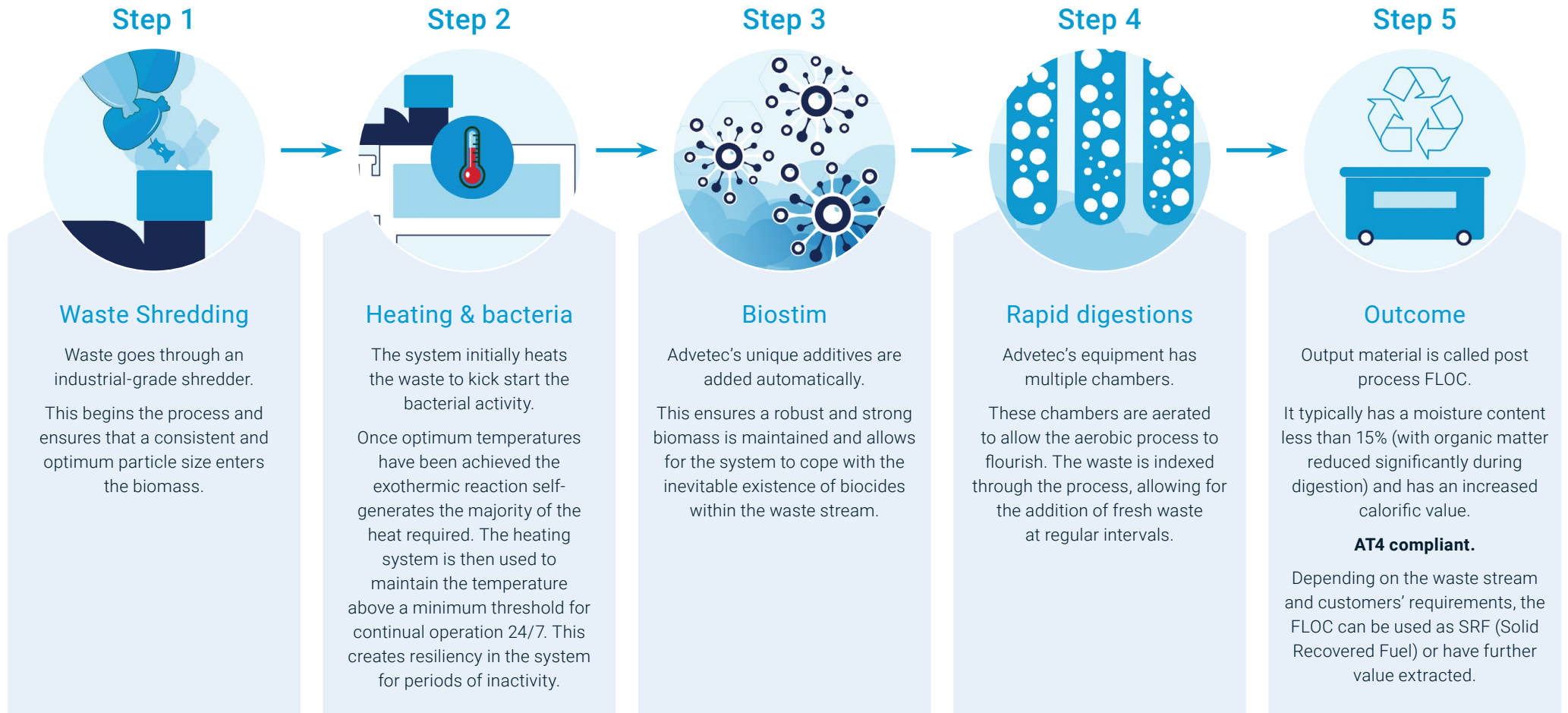
Our appetite for ongoing research and development demonstrates our evidence-based approach to improving waste management practices and helping the industry think differently. We must consider the myriad uses technology can have to tackle waste challenges– whether that's helping to recycle it back to land or turning it into valuable Solid Recovered Fuel (SRF).

Dr Stephen Wise, Chief Strategic Development Officer

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How it works?

The in-vessel rapid aerobic digestion process aided by unique bio-stimulants, removes organic material from contaminated waste, creating an output that can be used as a fuel replacement, Solid Recovered Fuel (SRF), and is compliant with AT4 tests.



This process takes 48-72 hours to complete

Industrial-grade machines



Processing Capabilities

Advetec XO machines are available in three sizes and capable of **multi-machine configuration**, with each machine processing between 1.5 tons to 10 tons of Mixed Residual Waste per day.

This allows for variation in your future waste tonnage processing requirements.

Remote management and control

Our technology is in use across the globe. With that in mind, we have to ensure we can operate, control and monitor equipment anywhere in the world 24/7. Every Advetec system has a remote access capability that reports information in real-time.

Our machines monitor the production process including weights, heat, energy use and volumes in real-time – sending data back to our head office where we can control, change and adapt the systems for maximum throughput.

Modular Design

Our technology integrates with clients' on-site processes seamlessly. We assess your site and current operations and design the machine to fit your needs.

The modular design allows us to address your current and future requirements.

Site Requirements

Advetec XO machine requires a flat base for installation, and then for 3-Phase power to be available either from a mains supply or a site generator.

The Advetec XO machine does not need a water supply connected to it.



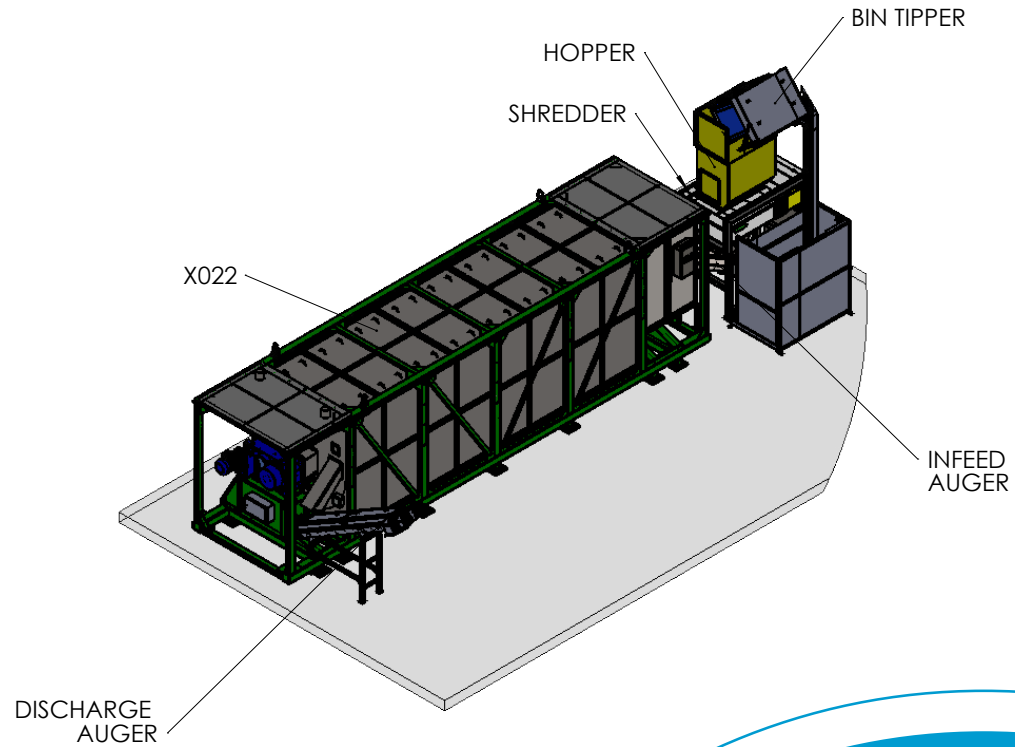
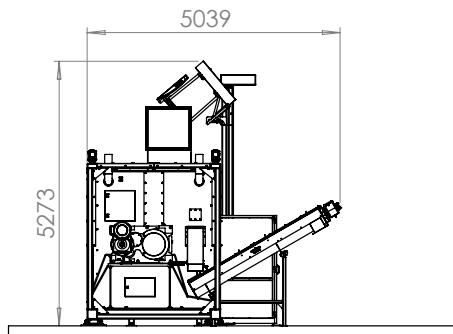
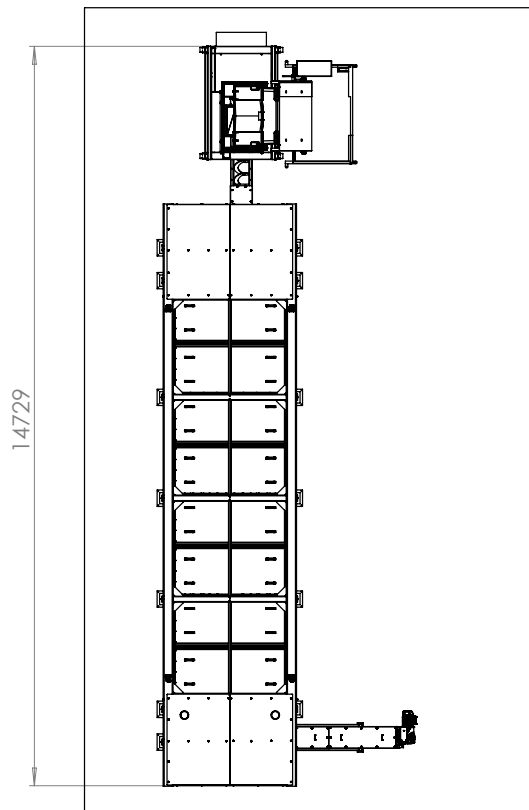
Our machines have been engineered and manufactured to cope with the rigorous environment that they are exposed to in the waste industry. The system has been designed with minimal customer disruption at the heart of what it does, and the maintenance has been simplified through robust design and feedback from our installations across the world.

We dovetail our technology into our customers' operations ensuring there are little or no changes to site operators' activities, this helps ensure rapid adoption by the team using our machines.

Richard Goff,
Chief Operating Officer



X022



The XO uses high-efficiency motors controlled by intelligent Variable Speed Drives to control them in the most power-efficient way.

The Advetec XO reuses the heat generated by the biological process to provide the optimal conditions for digestion. The machine has the ability to utilize high-performance electrical heaters to monitor and maintain the ideal conditions inside the XO. This ensures we are able to maintain a robust process 24/7.

Commercial impact

We understand that the pressures on enterprises are mounting, times are changing and with increasing operational costs, it is critical to think about lowering and stabilizing fees.

Using our technology, you can stabilize your offtake costs and reduce your transportation needs while staying ahead of the green agenda.

We offer:

- ✓ Fixed-term pricing
- ✓ SRF disposal channel which delivers economic efficiency
- ✓ Future-proofed approach to landfill, inflation and green legislation
- ✓ Modular design allows for capacity flex up or down
- ✓ Single monthly all-inclusive fee
- ✓ Only capital outlay is one month deposit
- ✓ Full account management and monthly benefit statements

Everything that matters

The importance of reliability is paramount.

We've tested our XO machines on remote islands, boats at sea and in heavy footfall environments.

We've built them to meet the strains and demands of high workload so that you can be sure you have the help you need.



What's included in the monthly fee:

- ✓ All bacteria and bio-stimulants
- ✓ Servicing & planned preventative maintenance (PPM)
- ✓ 24/7 Live remote access
- ✓ Proactive support with a dedicated account manager
- ✓ Training and onboarding for all users
- ✓ Agreed SLAs

We are an environmental biotechnology company that specializes in the reduction of mixed contaminated waste streams. By using our technology enterprises can turn waste into a commodity - creating a sustainable future for our planet.

Get in touch

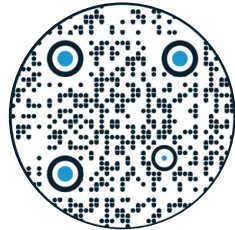
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Local waste solution, real world impact

