

# KEPT UNDER WRAPS

Panu Kantosalo, Cross Wrap, outlines how automatic bale wrapping can help maintain the calorific value and condition of alternative fuels, whilst allowing them to be easily transported and stored.

**A**utomatic bale wrapping helps to maintain the calorific value of alternative fuels. The airtight wrapped package does not allow the baled material to be composted with air. This helps keep the fuel's calorific value as high as it was when baled. The durable plastic wrap keeps any moisture away from the baled fuel material such as RDF or SRF. It also prevents combustion during transportation or storage, thus reducing the risk of fire.

These benefits help to maintain the condition of the stored fuel. This is an important feature as process efficiency and product quality are dependent on the quality



of the raw materials used in the manufacturing process, including the alternative fuel.

### Alternative fuel handling solutions

The Cross Wrap Waste-to-Energy concept focuses on maintaining good material and operational quality throughout alternative fuel wrapping, transport, and storage operations. As the alternative fuel bales are wrapped, the material quality remains unchanged.

The alternative fuel wrapping and the baled alternative fuel lifecycle have been conceptualised by Cross Wrap. This concept has been developed to simplify and generate operational benefits for both alternative fuel users and manufacturers.

One of the biggest benefits of wrapping is that the baled and wrapped material can be easily transported and stored. The cubical bale form is the most efficient

logistical shape for transportation, and the balers that produce cubical bales are the most common industrial balers around the world. Additionally, the bale densities and weights are easily maximised when using industrial channel- or two-ram balers. By wrapping these bales, their structure and content are automatically secured, and the bale handling is safer, cleaner, and more efficient.

Cross wrapped bales can be stored outside and safely stacked, which helps to minimise storage expenses and footprint. This enables efficient and safe fuel buffer storages with minimal costs and minimal effects on the fuel material. These storage benefits apply to all positions on the fuel material's logistical journey, such as in harbours, manufacturing sites, cement mill grounds, or transport company grounds.

Additionally, transportation of the wrapped bales is also very efficient and it is possible with normal flatbeds without any additional coverage.

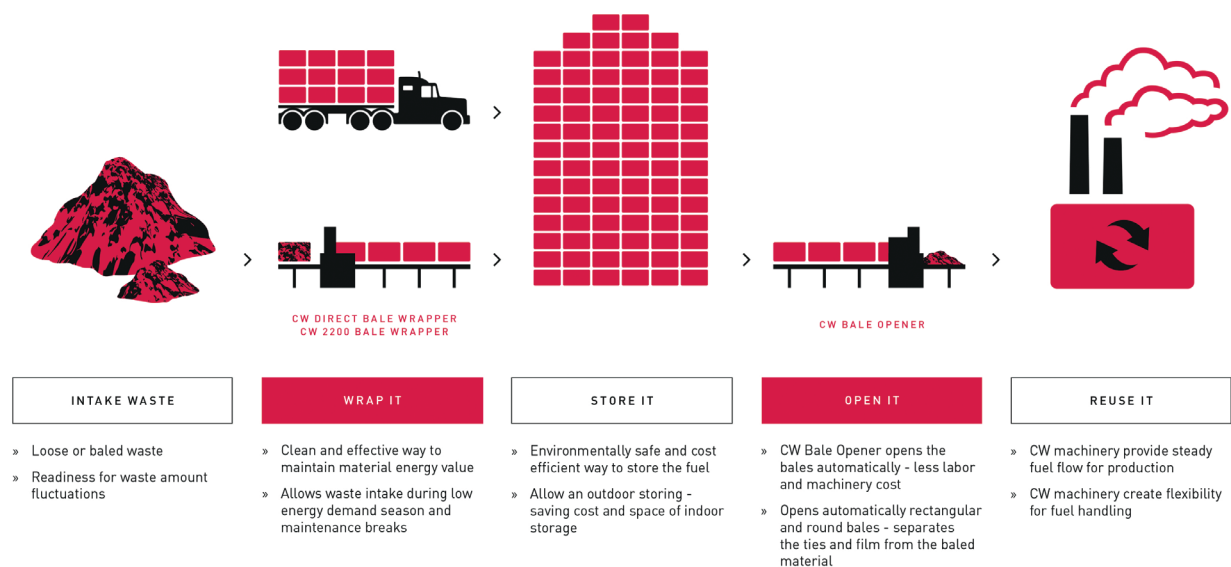


The CW 2200 Bale Wrapper has become one of the most used bale wrapping machines in the alternative fuel and waste industry.

### Automatic machinery for bale wrapping and opening

Cross Wrap's bale wrappers represent the company's long line of industrial wrapping machines. CW machines use the latest Siemens automation programmes and sophisticated graphical user interfaces, that are easy to use and to learn. The machines offer an efficiency boost with the help of automation, accurate programmability, and tailored wrapping programmes to suit each customer's specific needs.

There are two Cross Wrap bale wrapper models that both use the same wrapping method. The base model Cross Wrap bale wrapper is the CW 2200, which can be paired with any baler. The other wrapper



**Cross Wrap's Waste-to-Energy bale wrapping and bale opening methods provide an efficient way to handle and store alternative fuels.**

model is called the CW Direct wrapper, which wraps the bale directly from the two-ram-balers chamber. This direct wrapping method only needs the wrapping film to wrap the bale and no additional bale ties are needed. This method makes it possible to only use wrapping to seal the bale with no need for bale tying.

For opening the wrapped bales at the end location, Cross Wrap has developed the CW Bale Opener. This machine automatically opens the bales and removes the wrapping film together with possible bale ties, away from the bale. These machines are mainly used by Waste-to-Energy plants and in cement kilns. The machine improves plant efficiency with high automation and creates optimal fuel flow for processes, helping to keep the material quality high.

### Recyclable packaging materials

Cross Wrap bale wrappers use PE-film, which can be easily recycled when the Bale Opener machine is used to open the wrapped bales. As the machine opens and removes the bale wrap from the bale content, it enables the operation to have high-quality alternative fuel flow and to easily recycle the used bale wrap.

The company's Direct Bale Wrapper is beneficial as it enables high quality wrapped bales to be created without the need for traditional metal wire bale tying. These cross-wrapped bales are easy to handle, and the PE-film is the only packaging material that is left behind after opening the bales. This helps wrapping film to be used as an energy source, or to be recycled properly, without any metal removal.

The biggest customer sector for Cross Wrap includes MRFs, waste-fuel manufacturers and traders, waste-to-energy plants, and cement kilns. The company's method offers gentle and effective bale movement during the wrapping cycle. This keeps the bale structure unstressed during wrapping and helps to maintain clean operation, whilst keeping the machinery layouts, bale tracks, and conveying lines simple and adaptable, and also flexible for different needs.

### Conclusions

As the cement industry is constantly moving towards more sustainable and environmentally friendly operations, 'green energy', 'circular economy', and 'low carbon footprint' are becoming household terms and are taken into account when companies are determining and updating their operations. Just as these ideas need to be taken seriously, they need also to be implemented in such a

way that is good for business. It is important to create possibilities to improve the use of alternative fuels with the help of automation and innovative material handling. Solutions, such as automatic bale wrapping, create sustainability and efficiency benefits for processes in cement manufacturing. ■

### About the author

Panu Kantosalo (MA & BA) has been Cross Wrap Oy's Marketing Manager for the last two and a half years. He gained his MA of organisational communications from the University of Jyväskylä, Finland, and a Bachelor of Media Design from JAMK University of Applied Sciences, Jyväskylä, Finland.

Panu's work history covers B to C marketing, journalism and B to B communications in the fields of the consumer market, agriculture, advertising, international export markets, and engineering. Today, Panu's work consists of gathering the latest information on Waste-to-Energy, Circular Economy, packaging and logistical solutions, and compiling them into an understandable form. His interest in a circular economy and sustainability keep him studying and working hard for a more sustainable world.



**Wrapped alternative fuel bales can be safely stored outside without odours, leakages, or fire risk.**



**The CW Bale Opener is a fully automatic machine that opens and removes the bale wrap and ties from the baled material.**