

# Maximum payload

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Middleton Engineering says its pre-press twin-ram baler is set to optimise and transform bale transportation and industry can get its first peek later this year at RWM. Colin Millard reports.

Baler and recycling equipment engineers Middleton Engineering has announced that it is building the UK's first pre-press, twin-ram baler. Middleton says its ME2R150SQPP has already attracted interest from operators in the UK and Scandinavia.

With a press force of 150 tonnes, the new machine is capable of producing very dense bales of waste material but in a more compact bale size, designed especially for containerised transportation and storage of baled waste materials, including RDF. The main savings are a decrease in loading/handling times of up to 33%.

Up until now it has not been possible to completely fill a container due to the size of the bales which are 1100 x 750 but with Middleton's new bales they are the optimum size - 1050 x 1050 x 1400mm. This means it can be stacked two high instead of three high which decreases handling, makes the load more stable and the whole process simpler.

“Previously the loading and unloading of baled RDF waste in road containers has been difficult and time consuming to achieve, without damaging the wrapping materials and rupturing the bales, simply because bale sizes have not been optimised,” says Mark Smith technical director of Middleton Engineering.

“The new square section bale is the optimal size to load easily without damaging the wrapping and provides operators with a cleaner more hygienic solution, at the same time maximising the available container space,” he adds.

Middleton believes it is the first manufacturer to take this strategic path. By integrating pre-press features in the design, Middleton is providing operators with a powerful machine that combines the high throughput of a channel baler with the superior compaction rates of a twin ram machine.

On a standard twin-ram, once the chamber is full of product and the main ram begins compression, it pushes the product against a shear blade. This literally cuts the top off (like a cheese slicer) as it compresses, forming the flat top of the bale - taking energy away from the compression. The pre-press flattens the top down first, so the full power of the main ram is free to go into the compression of the bale. It allows for denser bales and speeds up throughput as well.

The design, which forces more materials into the chamber before the twin ram cycles through, achieves high compaction rates with fewer cycles and is therefore more energy efficient. As this is happening, a new charge of material can be prepared in the pre-press to maximise operational efficiency.

In addition, Middleton’s prepress twin ram will be the first machine to combine both wire and plastic tie capabilities in the same machine – making it very quick to switch from different waste streams such as cardboard, which requires wire ties, or RDF which uses plastic.

## STERLING COUNCIL

Stirling Council bought the first ME2R80 twin ram baler from Middleton Engineering, which is part of a family of balers designed to improve energy efficiency and compact difficult materials such as hard plastics without shredding first.

The baler can handle hard plastics and bale materials such as printed circuit boards, commercial and industrial waste and TV surrounds. It has been stress tested and measured as producing 80 tonnes of press force on resource material, from just a 22kw motor. This extreme force on the resource produces the heaviest, most dense bales possible to ensure maximum payload for bales of cardboard, plastic bottles, tins and paper. This is achieved using a specially developed hydraulic system designed by Middleton.

Stirling Council bought the machine because it produced more compact bales despite its medium size. Currently, the council’s waste recycling rate is 57.4% and it expects the baler to help improve this. Stirling has 40,000 households. To house the baler with space to store material to be baled and finished bales, the council has built the Polmaise Recycling and Baling Facility near Fallin in Scotland to house the baler with.

At Polmaise, cages of plastic bottles to be baled will be lifted by fork lift truck and tipped directly into the new ME2R80’s hopper, instead of being emptied onto the floor and swept into the existing channel baler by a council operative. The new process is cleaner, faster and more efficient.