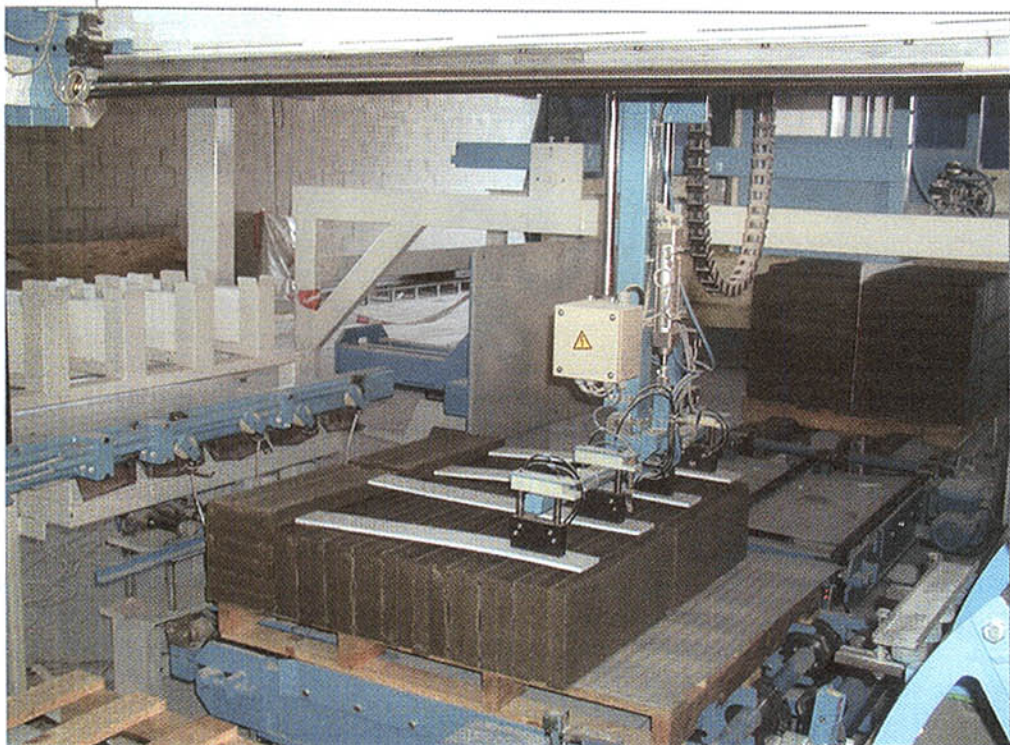


A custom-made suit for treated concrete stones? New universal machine solves the problem

The order was a special challenge for Rino-Werke Maschinenbau GmbH, Bammertal, Germany: to safely package high quality palisades, balcony balustrades, and stair railings for worldwide export without damaging them while still saving space. In addition, an individual pallet assignment scheme had to be

taken into account for the different types of stones to be stacked. This difficult packaging work, which had previously been done manually and for which it had become increasingly difficult to find employees, should also be made more considerably efficient by the new Rino equipment.



World innovation from Rino: Fully automatic machine for combined packaging: Edge on, flat, face up/down, interlocking, with cords, Styrofoam, plastic wrap.

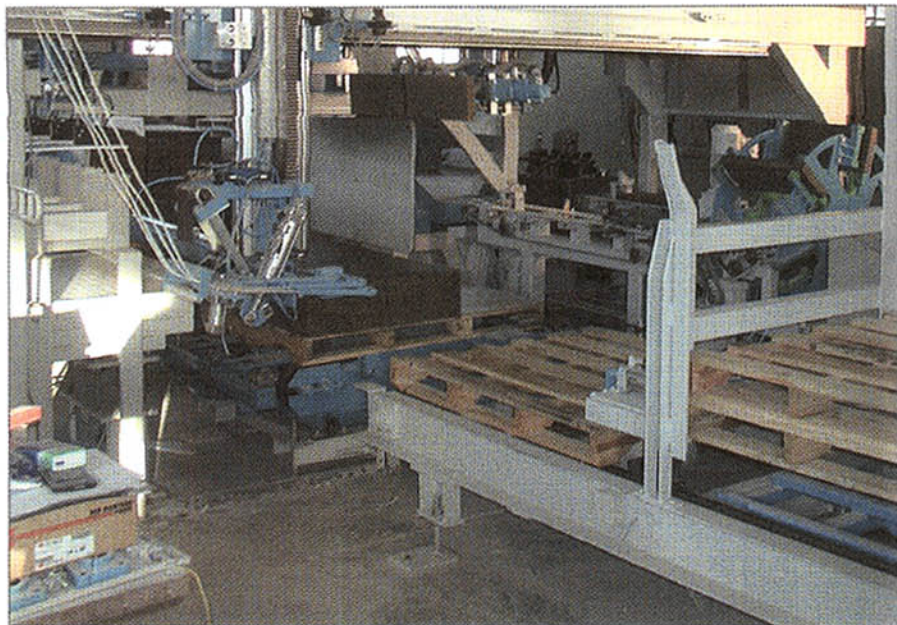
Rino developed a universal packaging machine for this application based on an automatic packaging machine which is already in common use in Germany. According to the company, the new machine is a world innovation and has the following characteristics:

- Optimal pallet usage
- Compact and stable packaging units
- Optimal production for the edges and visible surfaces
- Flexibility for different formats
- Rapid re-tooling times
- Can be combined with all treatment machines
- Rapid cycles and high productivity

Rino Managing Director Marco Müller: "What is really unique about this unit

is its versatility of the complex packaging combined with its high speed. Roofing tiles, for example, can be laid either face up or face down or interlocking to save space until the optimal package height is achieved. Each layer is protected with cords in order to prevent damage during transport. In addition, a plastic wrap sheet is placed on the transport pallet before the first layer of stones. This kind of packaging is unique in the world."

In addition, it is possible to combine horizontal and flat packaging. Styrofoam strips are placed on each layer as additional protection. A horizontal Styrofoam layer is used as well. Finally, all products are pushed together and the packets are finished. The feeding and routes for the production sheets to the packaging machine has also been taken care of. The pallet magazine can also be variably set up for three different types of transport pallets.



The stacked pallets are automatically fed to the packaging machines.



takes care of the transfer of the production sheet to the feed line for the packaging unit. Compared to mass produced units, it is optimized for the necessary movements, the product weight, and robustness, the PLC integrated into it was Rino programmed itself, and it can feed an entire layer of treated stones into the packaging machine thanks to its heavy construction. For these reasons the design was preferred by the customer to the standard robot that was offered.

Marco Müller: "With the new Rino automatic universal packaging machine we have proven that there is no problem in packaging for which we cannot provide a suitable solution."

The high performance robot was developed for rapid transfer of the stones from the production machinery to the packaging machines.

Only one employee is required to operate the equipment, that means for every step from the delivery of the

self-stacking production pallets from the drying area to the package output to the fork lift. A robot built by Rino