Material Handling Vehicles

house the goods are located. The allocation of the retrieval positions is defined by optimisation criteria, for example order priority, shortest route or the creation of double cycles. This ensures that the truck always travels to the nearest location at the right time. The tri-lateral stacker now semi-automatically retrieves the goods via warehouse navigation and takes them to the transfer stations in outgoing goods. Before the pallet stackers load the pallets into the HGVs, the pallets are booked out of the system through a hand-held scanner and the delivery documents are generated automatically. This means that during peak times, there can be a handling capacity of around 500 pallets per day in the zones of incoming and outgoing goods.

Maintaining up-to-date information Data radio transmission and mobile terminals provide networked communication throughout the warehouse. The employees at Moser Trans receive their instructions for stacking, retrieval and picking orders via the display on the truck or a hand-held terminal. The handling of paper lists or working “on call” are now a thing of the past. By scanning barcodes, all movements of goods are immediately transmitted by radio transmission to the Jungheinrich WMS where they are analysed in real time. This avoids delivery errors as well as costly return handlings and supplementary deliveries. The information about stock levels is kept up-to-date at any time. The prerequisite for a functioning radio data transmission system is optimal radio coverage throughout the warehouse. Jungheinrich offers a number of services in its portfolio to ensure that this is the case. By running a WLAN simulation, the number and position of the radio access points can be determined based on the present framework data, even before the warehouse is constructed. A performance analysis can verify the results in a completely stocked warehouse and any necessary adjustments can be made.

Conclusion The example of Moser Trans shows that the investment is manageable and the benefits are great. It enabled untapped potential in the management and control of the warehouse to be uncovered, so that the entire warehouse system has now become significantly more efficient. At Moser Trans, the Jungheinrich WMS now controls all the intralogistical processes. The additional solutions, such as radio data transmission, warehouse navigation and the truck guidance system, provide further increases in the efficiency of all processes. A high level of process reliability can be achieved by means of the semi-automatic stacking in the narrow-aisle warehouse, where the operator only needs to operate the accelerator. Solely the abolition of search processes has played a major part in increasing handling capacity in the warehouse. “Thanks to this logistical concept, we can now operate our warehouse with just two employees”, explains Moser. “Our processes have become leaner and more reliable. We have now achieved complete warehouse transparency and enormous cost savings.” When asked about the reliability of the system, Managing Director Günther Moser replies: “Our customer ES Plastic expects a high handling capacity and a reliable partner. We are now able to rely 100% on the Jungheinrich solution and should any problems arise, we have very short response times and excellent after sales service. Thanks to the technology of the trucks, there have not been any breakdowns yet and the IT solutions are completely reliable. As a result, we can now provide our customers an optimum (delivery) service.”

Background Moser Trans was established by the Moser family in the 1920s as granite works. Until the 1970s, the company focused on the mining of granite, but as resources became scarce, it shifted its operations to the freight business, giving rise to today’s Moser Trans GmbH. Handling up to two or three scheduled trains at its outset, the company relies today on 35 trucks, around 55 trailers as well as two subcontractors to ensure punctual delivery and supply. Moser Trans’ customers come predominantly from the paper industry and paper processing sector as well as the food industry.
Process optimisation pays off

The example of the medium-sized freight carrier Moser Trans GmbH demonstrates that combining a warehouse management system with solutions, which actively integrate the trucks into the warehouse information flow, can even enable smaller companies to achieve an increased efficiency.

Material Handling Vehicles

Moser Trans GmbH, based in Plattling, Lower Bavaria, operates a conventional warehouse system for its customer ES Plastic, consisting of incoming goods, various transfer stations, an eight-aisle narrow aisle warehouse and outgoing goods. Although the warehouse is rather small at 3,300 m², it was nevertheless equipped with everything required for an optimised material flow. In 2010, the typical warehouse system for a medium-sized company was equipped with a warehouse management system (WMS) and other solutions for process optimisation, for the purpose of controlling the logistical flows more efficiently and ensuring transparent processes and inventories. As general contractor, Jungheinrich designed and installed the warehouse management system within just three months. In addition to the Jungheinrich WMS, the delivery included the warehouse navigation, the truck guidance system and the two EKX 515 tri-lateral stackers, the recording, the radio data transmission, the series 2475 truck terminals and MC 9090 hand-held terminals.

Complete tracking of material flow The Jungheinrich WMS now enables Moser Trans to map its entire internal material flow. The warehouse management system is a flexible system and, by using various parameterisation options, it can easily be adapted to changes in any of Moser Trans’ processes and systems. In particular, it fulfills the following functions: Client management, recording incoming goods, bypass, multi-stage transports, and management of the narrow-aisle warehouse as well as outgoing goods. It controls the Jungheinrich truck guidance system as well as the Jungheinrich warehouse navigation in narrow aisles. To do this, the WMS is linked through an interface to ES Plastic’s Enterprise Relationship (ERP) system. The radio data, the truck guidance system and the warehouse navigation provide further increased efficiency within the material flow.

The warehouse in Plattling is one out of four that Moser Trans operates for its customer ES Plastic. Finished goods are primarily stored here. “We wanted to optimise the processes in the warehouse, increase efficiency, reduce error rates and eliminate differences in stock”, explains Günther Moser, Managing Director of Moser Trans GmbH. “On the one hand we were convinced by the Jungheinrich logistics concept plus the proximity to the Jungheinrich plant in Moosburg. On the other hand, the price-performance-ratio was the best with Jungheinrich and by using the Jungheinrich WMS we were able to discover untapped potential in the management and control of the warehouse, with the result that our overall process is now more efficient. Should we wish to expand our warehousing capacities at a later stage, the system can also be expanded without additional costs. That’s ideal for our company.”

Error-free processes ES Plastic delivers the goods overnight to Moser Trans by HGV either in cartons or in boxes on pallets. The pallets are transported from the HGV to the incoming goods area using pallet stackers. The goods are recorded in the WMS by scanning the barcode on the pallet with a hand-held scanner. For this purpose, one pallet is always equivalent to one container. This process was significantly simplified in the Jungheinrich WMS by using dispatch notification data records from the host system. The existing product labels are also used in this system and the already printed barcode is automatically used as loading device number. The pallet stackers transport the pallets from incoming goods to a transfer station in the narrow-aisle warehouse predetermined by the Jungheinrich WMS. The narrow-aisle warehouse comprises eight aisles, each with five levels. The uppermost level is at a height of around 10.60 metres. A Jungheinrich EKX 515 tri-lateral stacker is instructed by the warehouse management system to stack the pallets. The truck picks up the goods, scans the pallet and the Jungheinrich WMS assigns a bay which is communicated to the employee via their data transmission terminal. The truck guidance system prevents any change of aisles. With the aid of the warehouse navigation, the truck then travels to the precise bay. The warehouse navigation uses RFID technology: Equipped with a warehouse navigation module, the tri-lateral stacker constantly transmits its position via the RFID transponders that are fitted in the floor at specified distances. The orders issued by the Jungheinrich warehouse management system are received by the truck controller, and the Jungheinrich Logistics-Interface on the truck terminal translates the data for the truck. This means that the truck knows its precise destination and all the operator has to do is pushing the accelerator. The truck then travels to the appropriate pallet bay via the fastest route, only using the necessary amount of energy required, and stacks the goods automatically. The operator is no longer required to confirm the bay via scanner. The Logistics-Interface takes over the scanning and the Jungheinrich WMS records the products and location in the ERP system.

The warehouse can currently accommodate 5,000 pallets. At a height of 2.40 metres, these are comparably high. With a standard pallet height of around 1.30 metres, the warehouse could accommodate approximately 10,000 pallets. Merely the newly acquired EKX 515 tri-lateral stacker is in charge for the narrow-aisle warehouse. Only during peak times support is provided by an additional used truck. All retrieval orders which ES Plastic issues to Moser Trans are automatically transferred to the Jungheinrich WMS. Following approval of the retrieval orders in the WMS, the affiliated truck guidance system forwards the order positions to the truck terminal of the tri-lateral stacker in the narrow-aisle warehouse. This now knows in which aisle and at what level in the narrow-aisle ware-