

PRÜM-Türenwerk GmbH

The key to success for PRÜM-Türenwerk GmbH from Weinsheim, Germany is:

"The customer first - not only meet his expectations, exceed them. Specifically: Quality and its improvements at all levels - Total Quality Management."

project Automation & Engineering GmbH supported PRÜM-Türenwerk and the quality management strategy already with palletizing in the past. The solutions project A&E GmbH convinced the customer above all by durability, low maintenance intensity and high performance. PRÜM-Türenwerk GmbH approaches project A&E GmbH in the summer of 2015 to develop another concept, which was initially an idea by the employees of PRÜM.

Initial situation and requirements: So far, the standard frames have been fed to a paternoster using conveyor technology transferred to a palletizer. One of the employees manually equipped the pallets with protective boards and intermediate bars to protect the products. In addition, if a special frame should be put on the pallet, the employee also supplied it manually.

Tasks and requirements: The target was to optimize the production flow of frame handling and to double the output. The good cooperation in the past were a perfect cornerstone for the common concept development and a solution could be worked out very quickly.

In order to meet the needs of health management at PRÜM and to reduce back-strain work, this requirement was taken in by designing the concept.

Solution and implementation: The PROPAL portal robot was positioned over the entire range of the paternoster, the existing palletizer as well as the existing conveyor technology. The area was extended by eight palletizing stations as well as various conveyor systems – without expanding the already used area. To ensure a continuous flow at the significantly increased speed, an intermediate buffer was provided for up to six frames. The entire solution has been realized without the need for additional space - by building a second floor - and this is where the PROPAL plays its strengths.

The head – a masterpiece: with the versatile gripping tool of the PROPAL, both frames and protective plates are centered in the gripper head so that precise palletization is possible. Thus, mixed pallets are created without further manual help, which are forwarded without delay. The new concept allows palletizing at eight different palletizing stations.

The PROPAL 984X portal robot with its four axes, dimensions of 12 x 8 meters and a height of 4.5 meters is designed for the handling of frames and protective panels with a load capacity of 250 kg/gross. Completing the handling of PROPAL among others: the existing takeover paternoster, various chain conveyors or a leader guided vehicle system (AGV).

The performance of the PROPAL palletizer is three frames per minute, which are positioned accurate, only deviations of +/- 3mm are tolerated. The finished palletized stacks are transferred to existing conveyor systems by cross transfer carriage.

The prudent behavior of the company PRÜM-Türenwerk against its employees, which is based on a

german company health management (BGM), shows that automation and employment of the employees do not have to be excluded. Staff surveys on company health management, for example, attempt to consider the wishes and concerns of employees. Discharge of the employees, increase efficiency and the continued employment of the employees go hand in hand.

The expansion was carried out in a short time during normal operations. At the same time, the integration of existing conveyor systems into the new system was carried out. With the training of the employees the project was successfully completed.

The highlights of the project:

- doubling the output without additional free space
- Massive relief of the employees, in particular reduction of back-strain activities
- Increased continuity in production flow and availability
- Seamless integration into an existing production line and execution during production with minimal downtime

[See the video.](#)