psb GmbH Materialfluss + Logistik | 66955 Pirmasens | Germany

# Rapid Ring

## Control and material-flow management of a sorting unit with the Bachmann automation system



**bachmann.**

**Profitable intra-logistics units for production and distribution are the core field of psb GmbH, Material Flow + Logistics at Pirmasens (Germany). An automated sorting unit was conceptualized and installed by psb within the scope of new structuring of the central spare parts distribution ('Zentrale Teileauslieferung ZTA') of a wellknown automobile manufacturer in Munich (Germany).**

**The system, with a continuous sorting capacity of more than 3,500 parts per hour, can handle more than 300 different customers. The real-time processing of enormous data quantities by the control system was one of the greatest challenges. But the enterprise has found the necessary performance for this in the Bachmann automation system.**

The increasing diversity of parts of an increasing number of different machine models, and customer expectations of immediate availability of spare parts have posed great challenges to the parts distribution by automobile manufacturers.

New strategies in logistics are required. The ›ringsorter‹ from psb is a system which has been optimized for precisely such tasks: parts which are very different in shape and weight, can be commissioned by this sorting unit with the highest speed and in less space.

**The controller takes over aspects of material-flow management.**

"Communication between the superordinate material-flow system and the control system of the unit itself quickly leads to a bottleneck in the case of such complex sorting processes," says Dr. Joachim Weber who considerably contributed to the technical implementation of the unit. Conceptual studies for the new unit showed that solutions using material-flow computers and classical programmable controls would soon reach their limits. This drew
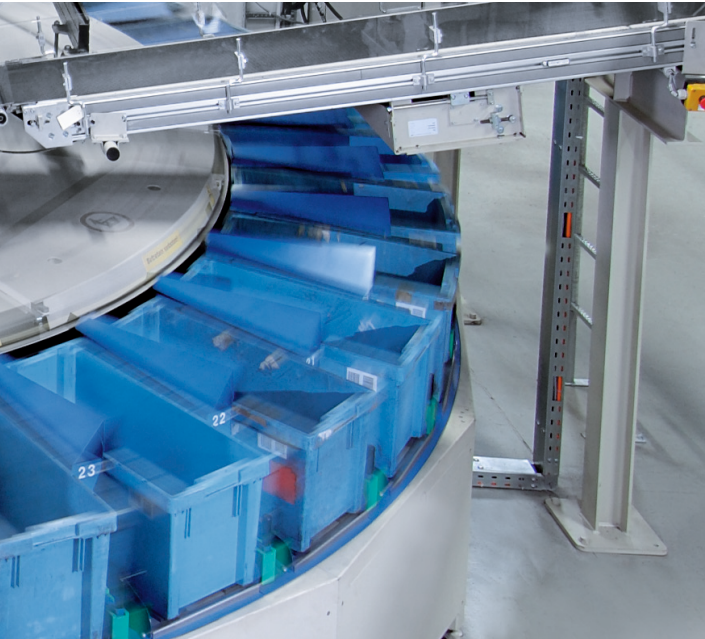
◀ Super quick: the boxes for the sorted parts are placed on a circular platform in the psb ›ringsorter‹.

the attention of the engineers of the goods distribution specialist to the high-performance automation system from Bachmann electronic. This system combines the properties of an efficient process computer with the simple handling of a modern control system. "It is possible to easily integrate parts of the material-flow control directly into the control system with Bachmann controller, since even large data tables can be maintained and processed directly in the control system," as Martin Mueller, who was responsible for development in this project describes it. It is one of the great strengths of the new solution.

### A controller for supply and ›ringsorter‹

The entire sorting unit is composed of three ›ringsorters‹ that work in parallel, in which each sorter is allotted to a Bachmann controller. For reasons of fail-safety all Bachmann controls constantly match the information about the position of each transported part. The 2 supply routes are controlled simultaneously by the respective Bachmann controllers: "Despite of the large number of parallel work cycles the

drives for some 30 axles per ›ringsorter‹ are controlled by one single Bachmann controller, which provides for the accurate placing of the part," says Dipl.-Ing. Mueller. Therefore, the entire periphery – about 40 slaves per control – is connected to the Bachmann system via Profibus, which is an established element of materials-handling technology. "Actually, the CPU of Bachmann is not burdened by this," says development engineer Mueller, and explains that the top performance of a total of 5,000 parts per hour can be handled without problems by the control system via both the supply routes.

### Programming Bachmann controller in high-level languages saves time

The strength of the company, with more than 360 employees at the Pirmasens location is the planning and implementation of tailor-made distribution systems. One of the challenges faced by the engineers is to ensure the smooth integration of system-determining single components into the system in its entirety. For this purpose, they use different development

▲ Arriving exactly: Positioning of parts on the ›ringsorter‹

systems side by side, which are optimised for the individual tasks. Their results must finally flow into the total control of the plant. "We can port different applications directly on the control system because of the high-level language capability of the Bachmann controller. This is invaluable to us," says Martin Mueller and he is glad that it was possible to save considerable development time in comparison to classic PLC languages.

**Diagnosis from a distance**

In the event that the customer needs support for service and diagnosis, immediate help is guaranteed from psb premises via secure and encrypted telecommunication connections. To this end, additional monitoring functions can be activated on the Bachmann controller upon customer request; these functions record permanent reports for all current processes. "Due to the high memory capacity of the Bachmann controller, even a 'look at the past' is possible,"

says Martin Mueller and adds: "Thus, even a question about events of the day before can be answered quickly. These advantages can be used successfully for the optimization of all the processes during implementation and the run-up phase."

**Deepening integration is the future**

With the Bachmann control system, psb has come closer to the target of bringing more intelligence into the control system and saving unnecessary communication- and development expenses. Dr. Weber sketches a possible future scenario: "We can conceive of a configuration level at which the Bachmann controller will directly access databases of material-flow management and thus further increase the performance of the entire system."

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