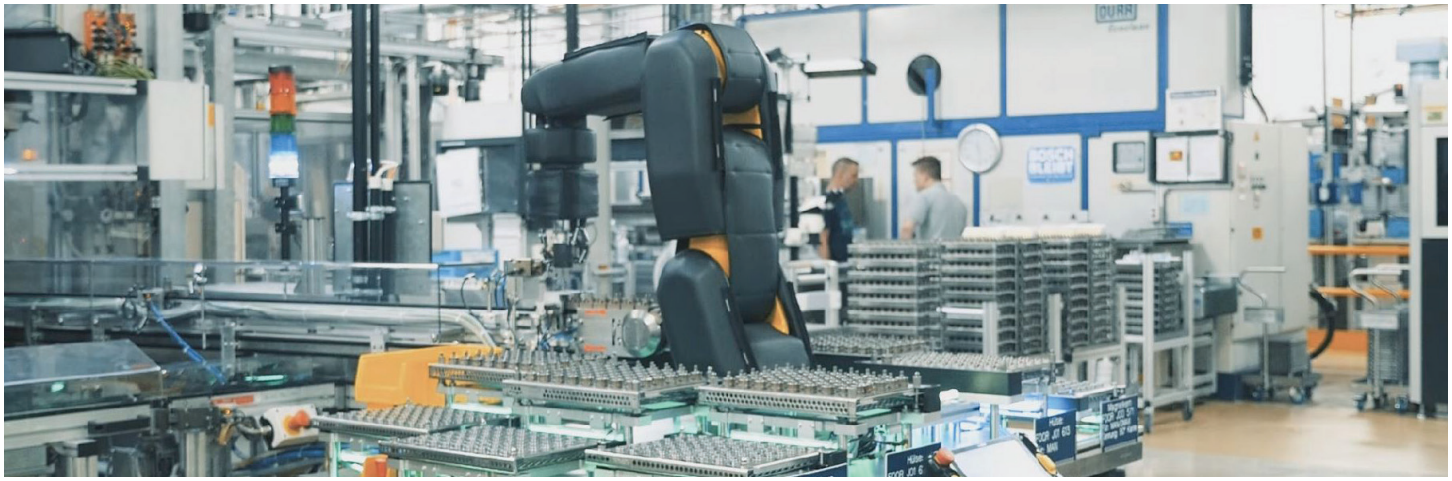
rexroth
A Bosch Company



Process optimization at the Bosch Homburg plant

APAS automates complex welding line

The Bosch Homburg plant had no choice but to expand production capacities to keep up with the rapid growth of injection systems for commercial vehicles. With APAS assistant, the group now has highly flexible robotics technology available that fully automated the manufacturing processes, some of which were previously carried out manually, within the shortest possible time, relieving the employees' workload and increasing productivity in conditions where space is critical.

The Bosch Homburg plant manufactures common rail injection systems for commercial vehicles. Up until now, these components were manufactured on a semi-automated system. This system joined the magnetic cores and sleeves, which were then manually aligned at a cramped manual workstation, assembled and inserted into the laser welding station, after which they were subjected to quality control in a measuring unit. Rising market demand in the commercial vehicle segment made it necessary to expand the plant's capacity. The retrofit solution had to meet several criteria: to fully automate the manual welding station as well as increase productivity, to relieve the employees' workload, meet the critical requirements for space and rule out any downtime for the line.

After six months of development, the line was retrofitted with a special solution, in which two APAS assistants now share the processes; the installation of this solution was made over a weekend and with virtually no production downtime. Equipped with intelligent tools that imitate human gripping movements, the two robots are sufficient to perform the complex process of aligning and joining (APAS 1) as well as laser welding and feeding to the measuring unit (APAS 2). The system meets the critical conditions for space with the APAS assistant, which is clad in sensor skin. It completely replaces the otherwise extensive fencing. The continuous supply of material is guaranteed by an operator who reloads the machine every 30 minutes and ensures smooth operation. This covers the strong market demand under efficient manufacturing conditions.

The challenge
Increasing demand for injection systems requires smooth retrofitting of production capacities in the tightest of spaces.

The solution
Full automation of the process with two APAS assistant units.

The result
"APAS are doing an excellent job at our plant. We are also going to use APAS systems for the next generation of products."
Stefan Betz, Group Manager Design, Bosch Homburg Plant

Solved with

- APAS assistant 1 for removal, alignment & joining
- APAS assistant 2 for laser welding & quality assurance
- Sensor skin cladding makes use possible in conditions where space is critical