



Plastics Systems

## Beinbauer Automotive Büchlberg

- Project:** Handling hot stabilizers and torsion bars
- Customer:** Beinbauer Automotive GmbH & Co. KG
- Technology:** Transporting various components out of a power & free system

Beinbauer Automotive manufactures stabilizers and torsion bars for the commercial vehicle sector featuring the most different design variants and sizes. For the manufacture, the raw material is brought to the desired shape in a preheating- and bending process before it is further processed. During the hardening and tempering process (warming up and quenching/tempering) the microstructure of the steel changes such that the components require a further heat treatment becoming necessary for production reasons. To that end, the stabilizers – being suspended at a power & free system – run through a tempering furnace and after having soaked thoroughly through must be transferred by a robot to a second circuit.

### Project scope realized by SAR:

- Supply of a articulated arm robot and implementation in the already existing system structure
- Provision of a gripper system adapted to the ambient conditions, adjustable to the stabilizers and torsion bars in the assembly line
- Electrical & program-related connection to the power & free system
- Engineering, commissioning and programming

What was challenging in this project was the handling of the various different shapes and geometries and the thermal separation between the gripper and the hot components heated up to almost 850°C.

As desired by the customer, one and the same gripper should be able to handle all stabilizers and torsion bars. Retrofitting to match the different products should be possible within a short time. Based on these requirements, decision was made in favour of a double-gripper concept that allows synchronous adjustment of the distance between the two gripper elements via a trapezoidal screw featuring a left-hand thread at one side and a right-hand thread at the opposite side. Beyond that, both gripper elements can be adjusted by rotating them by up to 45°. This way, the take-up force is induced to the component at right angle (in case of inclined contact surfaces) thus preventing a possible damage caused by edge pressure.

For thermal separation purposes, a special sintered material characterized by a very low thermal conductivity was used for the gripper jaws. In addition, the gripper includes a water cooling integrated into the gripper dissipating the residual heat to a water/air heat exchanger. For the mechanical part of the robot as such a heat-resistant protective cover was employed.



SAR Elektronik GmbH  
Nürnberger Straße 96  
91710 Gunzenhausen  
Germany

Pho: +49-9831-8811-0  
Fax: +49-9831-8811-111

www.sar.biz  
kss@sar.biz