The manufacturing of automotive body components in press lines is a sensitive process. The quality characteristics of body components vary. These fluctuations are rooted in the fact that the factors influencing the component quality are varying, e.g., fluctuations of batches regarding material quality, abrasion or heating of the tool during the production cycle. If a certain quality characteristic exceeds a predefined range an intervention in the process is necessary. This intervention is based upon the subjective know-how of the machine operator. Objective information about the state of the process, like tool temperature or the material quality of the semi-finished product is not available. Therefore, a lack of knowledge emerges in the interrelations between the tuning parameters of the system press-tool and the component quality during different stages of the process (material quality, temperature…). In this paper a complete concept for an automatic process control in press shops is described. The concept will be realized in a pilot
plant for mass production in the press shop of AUDI AG. The mechanisms of occurrence of quality defects are shown in the paper, as well as the essential factors influencing the quality during the mass production of body components in the automotive industry and their variation. A sensor-system for continuous measurement of influencing variables during the mass production is presented. The key element of the concept is the non-destructive identification of material-properties for every single blank. By associating the sensor-data with the respective quality, a knowledge-based process control can be realized. The purpose is to create a failure prediction algorithm and make optimal adjustments for each stroke of the moulding press, respectively. The potential of existing actuators in modern press lines as well as new, tool integrated proposals for actuators are highlighted.

**Stichworte:** process control; press shop

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