- Process control system ▶
- Machine control system ▶
- RETROFIT plant upgrading ▶
- Glass industry ▶
- Paper industry ▶

Realization of a new plunger control system

Due to a lack of spare parts for the existing plunger control system, it was necessary to work out a new control concept with modern technology. An exact synchronous run of the plunger and the machine was demand. In addition, the handling for the operator interface should be simply as possible. To keep the maintenance and service effort as low as possible, we used Siemens S7, which is well known by the electric staff. We developed a software package for editing the curves. This package permits importing curves, representing curves graphically, or importing curve data from MS-Office applications (e.g. Excel).

Normally, during production the plant will be operated from the operator cabinet. In this cabinet all necessary operator elements are included. The Simatic TP170 panel provides the operator with all feedbacks from the plant. In addition to the touch panel a PC is available. With this PC the cam can be displayed and edited.

The needle is going to be controlled relatively to the position of the table by an electronic cam in automatic mode. The favored cam can be chosen in manual mode. When switching back to automatic mode, the cam will be interpolated. At the beginning of automatic operation, the needle will be lifter to the highest position. Afterwards, the needle moves down with the set velocity. As soon as the needle matches the cam, it follows the cam. With this the synchronization was performed successfully.

From now on, the cam will be repeated cyclic. The parameter of the cam (e.g. offset to the working table, maximum lifting) can be changed during operation in automatic mode, to make optimizations to the production process. In addition, the different programmed cams can be saved in a data base. In case of a voltage drop or a technical malfunction, it is possible to operate the needle of the plunger manually via an emergency operation mode.