

## Separating out plain pins

## Title

- Indirect actuation of a double-acting cylinder with a bi-stable valve (memory)
- Application of a 5/2-way pneumatic bi-stable valve with manual override
- Use of a time-delay valve with normal position closed
- Design and construction of a control system with continuous to and fro movement (continuous cycle)

## Training aims

- Drawing the displacement-step diagram (with signal lines)
- Designing and drawing the circuit diagram
- Comparing one's own solution to the one proposed
- Constructing the circuit
- Function check
- Adjusting the stroke times with the one-way flow control valves
- Adjusting the time delay valve
- Checking the time cycle
- Follow up
- Dismantling and orderly replacement of components

## Problem

**Problem description** A double-acting cylinder (1A) guides cylinder pins towards a measuring device. The pins are separated by means of a continuous to and fro movement. The oscillating motion can be started by means of a valve with selector switch.

The duration of the forward stroke of the cylinder is to be  $t_1 = 0.6$  seconds, the return stroke  $t_3 = 0.4$  seconds. The cylinder is to remain in the forward end position for  $t_2 = 1.0$  seconds, resulting in a cycle time of  $t_4 = 2.0$  seconds.



