Pneumatics — *Subject*

Switching point for workpieces — *Title*

Training aims

- Indirect actuation of a single-acting cylinder
- Supply and exhaust air flow control of a single-acting cylinder
- Development and construction of a self-latching circuit with “dominant off behaviour” (or “dominant on behaviour”)
- Familiarisation with the abbreviated notation used to show cylinder movements

Problem

- Drawing the displacement-step diagram (with signal lines)
- Designing and drawing the circuit diagram
- Comparing one’s own solution to the one proposed
- Construction of circuit
- Function check
- Adjusting the one-way flow control valve
- Follow up
- Dismantling and orderly replacement of components

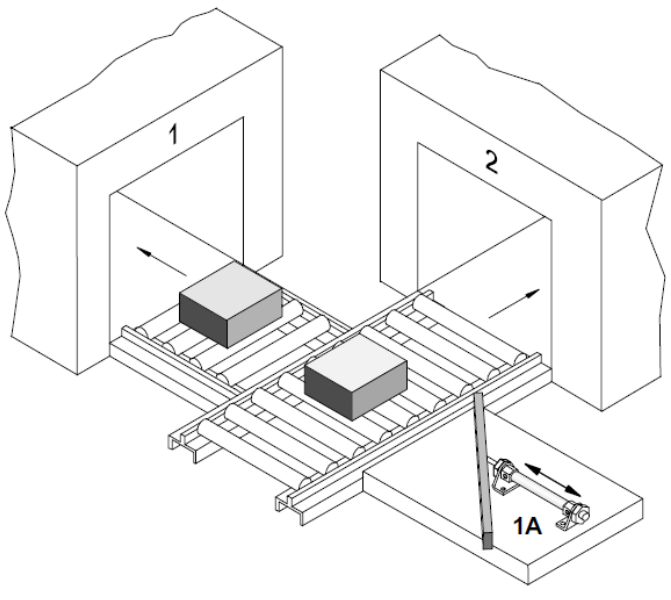
Problem description

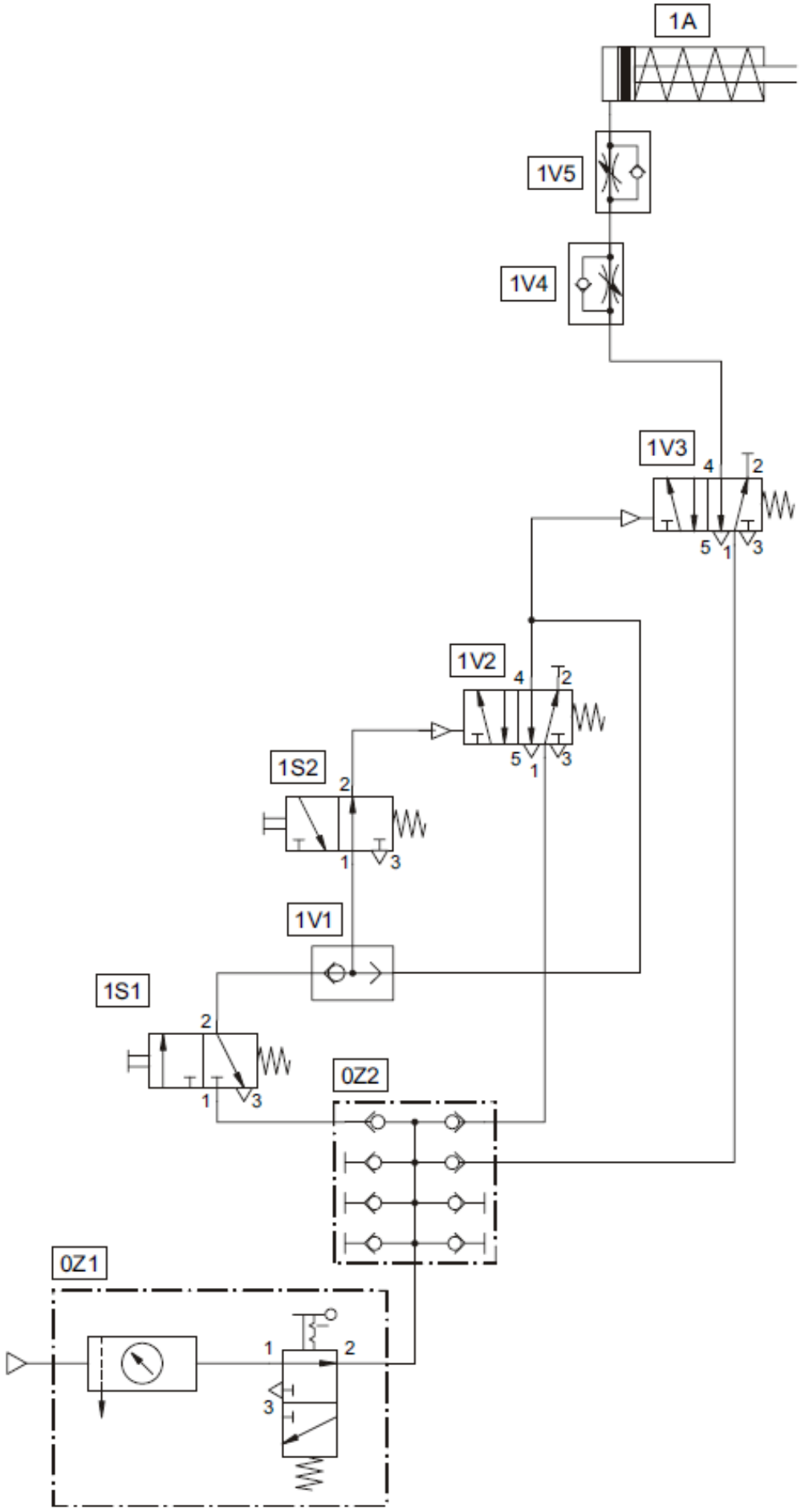
Heavy die-cast blocks for power valves are to be fed to machine line 1 or 2. Brief actuation of a push button causes the single-acting cylinder (1A) to be extended with flow control. After a second push button has been actuated, the cylinder retracts with flow control. A single pilot valve with spring return is used as a final control element. Memorising of the advance signal is realised via a pneumatic self-latching circuit with “dominant off behaviour”.

Abbreviated notation

1A+	**1A–**
1A+	the piston rod of the cylinder (1A) extends.
1A–	the piston rod of the cylinder (1A) retracts.

Fig. 9/1: Positional sketch




1A
1V5
1V4
1V3
4
2
5
1
3
1V2
4
2
5
1
3
1S2
2
1
3
1V1
1S1
2
1
3
0Z2
0Z1
1
2
3