

Movie 1: Magnetic particles crossing over a magneto-capillary valve in a device architecture with patterned air valves. The particles (10^7 M-270 particles) start in PBS buffer and are transported into PBS buffer.

Movie 2: Magnetic particles crossing over a magneto-capillary valve in a device architecture with patterned paraffin valves. The particles (10^7 M-270 particles) start in lysis/binding buffer LB1 (containing 100 mM Triton X-100) and are transported into PBS buffer. The paraffin melts prior to the crossing, and it resolidifies after the crossing.

Movie 3: Magnetic particles crossing over a magneto-capillary valve in a device architecture with patterned air valves. The particles (10^7 M-270 particles) start in PBS buffer and are transported into PBS buffer. The left chamber is slightly underfilled, while the right chamber is slightly overfilled. As a consequence, the necking and pinch-off process is less sharp when crossing from right to left, while the crossing from left to right results in excellent pinch-off.