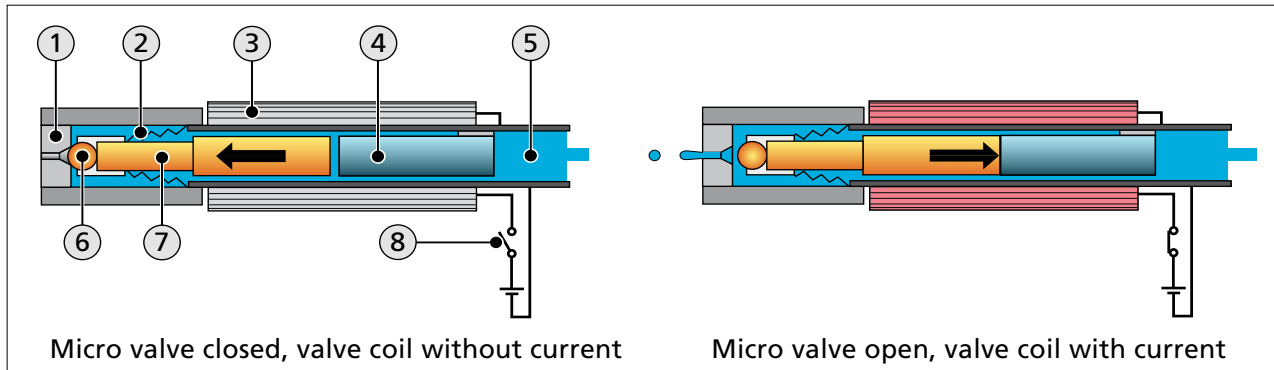


FUNCTIONAL PRINCIPLE

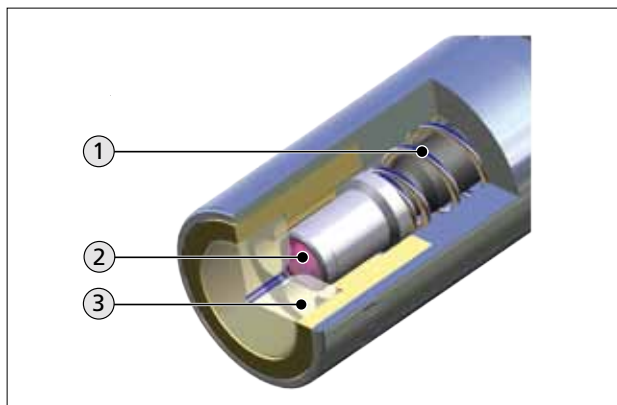


- | | |
|-----------------------------|------------------|
| 1. Valve seat, valve nozzle | 5. Medium |
| 2. Closing spring | 6. Valve ball |
| 3. Valve coil | 7. Mobile anchor |
| 4. Stationary anchor | 8. Switch |

The micro valve is actuated electromagnetically and medium flows through it directly. When there is no current, the micro valve is closed. The closing spring acts on the mobile anchor with the valve ball.

When there is a current feed through the valve coil, the mobile anchor with the valve ball is magnetically pulled by the magnetic field of the stationary anchor. The micro valve opens and the medium emerges.

HARD-SEALING VALVE STRUCTURE WITH SAPPHIRE AND RUBY



1. Closing spring
2. Valve ball
3. Valve seat, valve nozzle

Thanks to the use of hard materials for the valve seat (sapphire) and the valve ball (ruby), unrivalled possibilities open up for micro valve applications.

The hard-sealing valve structure makes precise opening strokes possible of a few hundredths of a millimetre and repeat accuracies in the range of thousandths of a millimetre.

The short opening travel and the correct actuation allow the micro valve to be switched 4000 times per second long-term. The finely ground and polished optimal inner forms of the valve nozzle and valve seat provide the best possible flow properties before emergence.

This results in an exactly dispensing jet for contactless dispensing and optimal drop formation.

Additional guide elements in and around the hard material components and the already mentioned advantages, if properly applied, make for a long micro valve life-time. By using these high-quality materials, high chemical and mechanical resistance and compatibility values are also achieved.