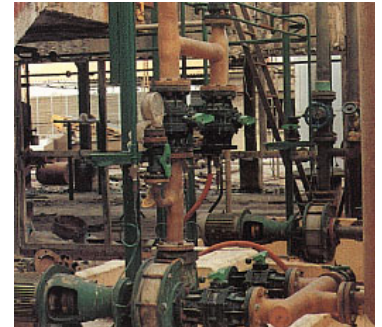


Maintenance of a solenoid valve using the Inrush mode

Industrial process control involves maintaining a **physical or chemical quantity** at a predefined target level. This is usually done by means of an automatic gate valve driven by a servomotor. Controlled electronically, this solenoid valve can be used to authorize or interrupt the circulation of a fluid or gas in a circuit by mechanical means.

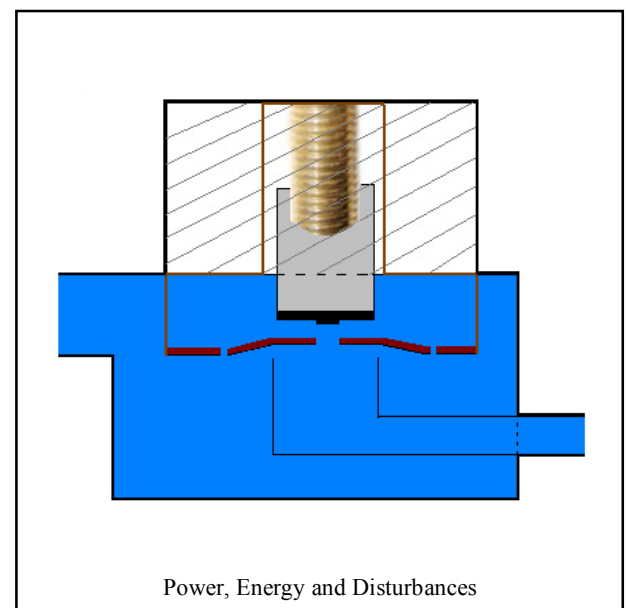
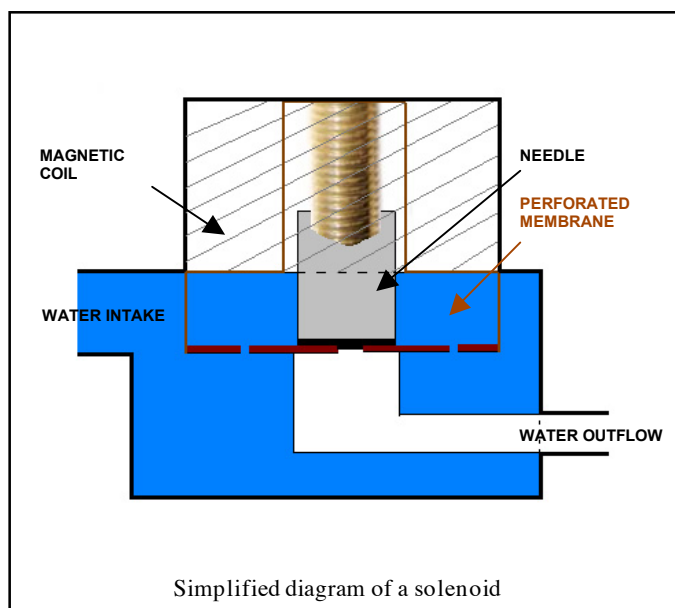
This type of system is often used in sectors such as metallurgy, chemicals, petrochemicals, steelworks, glassworks, heat treatment and the agri-food industry.



L'électrovanne

There are 2 types of solenoid valves: "on-off" valves and "automatic" valves. "On-off" valves are either open or closed. With "automatic" valves, the size of the opening can be adjusted according to the requirements. They usually comprise a servomotor and a "converter/positioner" enabling an electrical control signal to be transformed into a pneumatic signal. It is then possible to adjust the flow rate from 0 to 100 %.

Depending on the amplitude of the electrical signal, and therefore of the pneumatic signal, the adjusting screw will position the needle according to the flow rate required. The opening thus created will allow the fluid to circulate throughout the system.

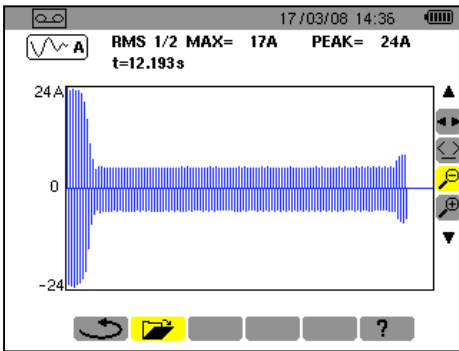
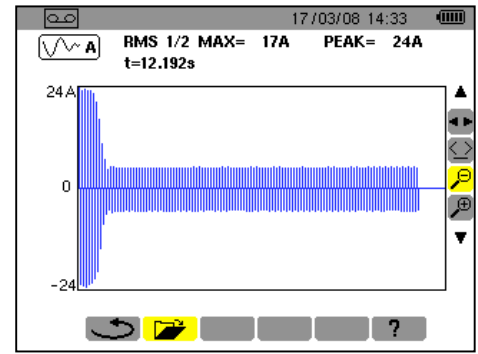


Maintenance

One of the tests required for solenoid valve maintenance involves checking that there is no leakage in the closed position. This case study focuses more specifically on electrical maintenance.

In this way, it is possible to verify that the system is working properly by simply studying the Inrush signal, also called the starting current, when the solenoid valve starts up.

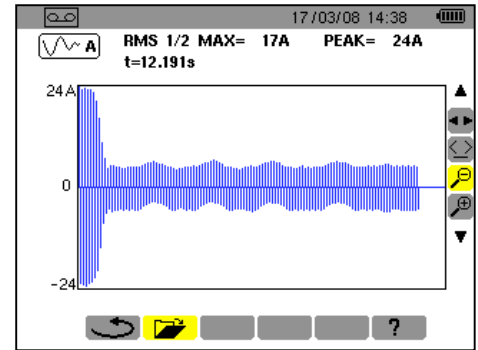
Using an instrument capable of measuring this signal, the user can display the curve corresponding to the current consumed during start-up. The curve opposite shows a **normal start-up**: a strong current surge at the beginning which then stabilizes before stopping.



In the 2nd example, the curve of the Inrush signal indicates an overshoot when the motor shuts down. This means that there is an increase in the torque and abnormally high current consumption, leading the user to conclude that the valve closing system is incorrectly positioned due to misalignment.

The needle "forces" itself into position for correct closure.

The 3rd example shows an irregular curve. This means that there is irregular current consumption throughout the closing operation. Explanation: the rotation of the solenoid valve's drive shaft is out of line.



CHAUVIN ARNOUX INSTRUMENTS WITH INRUSH MODE



C.A 8340



C.A 8230



C.A 8342