

Troubleshooting Solenoid Valves

A. Coil burnout.

B. Failure to open.

C. Failure to close.

A. Coil Burnout

Coil burnouts are extremely rare unless caused by one of the following:

1. Improper electrical characteristics.
2. Continuous over-voltage, more than 10%.
3. Under-voltage of more than 15%. This applies only if the operating conditions are such that the reduced MOPD causes stalling of the plunger, which results in excessive current draw.
4. Incomplete magnetic circuit due to the omission of parts such as the plunger on the PKC molded model coils.
5. Mechanical interference with plunger movement which may be caused by a deformed enclosing tube.
6. Voltage spike.
7. Valve ambient exceeds 120°F.
8. Fluid or gas temperatures greater than 240°F, while the valve ambient is 120°F.

B. Failure to open. (Normally Closed Types)

1. Coil burned out or an open circuit to coil connections.
2. Improper electrical characteristics.
3. In pilot operated valves, dirt, scale or sludge may prevent the piston, disc or diaphragm from lifting. This could also be caused by a deformed body.
4. High differential pressure that exceeds the MOPD rating of the valve.
5. Diameter reduction of synthetic seating material in pilot port because of high temperatures and/or pressures, or severe pulsations.

C. Failure to close.

1. Valve is oversized.
2. In pilot operated valves, dirt, scale or sludge may prevent the piston, disc or diaphragm from closing. This could also be caused by a deformed body.
3. Held open by the manual lift stem.
4. In pilot operated valves only, a damaged pilot port may prevent closing.
5. A floating disc due to severe discharge pulses
6. Have voltage feedback to the coil after the coil de-energizes.

