

# TECHNICAL INFORMATION

## Operating mechanism

A solenoid valve is a combination of two functional units :

- A solenoid (electromagnet) with a moving core (plunger).
- A valve body containing the right orifices and seals mechanism.

The plunger in a solenoid valve moves and changes the flow direction when a current is supplied to the electromagnet.

There are two basic types of Baccara GEM-SOL valves :

### Direct operated solenoid valves

When the solenoid is energized in a direct acting valve, the plunger moves and directly acts on the valve disc to open, close or change the flow direction. Direct acting valves' performance depends directly on the orifice pressure and the magnetic power. The increase of line pressure or the orifice size requires more power from the electromagnet.

### Pilot operated solenoid valves

These valves are recommended for applications where high flow at high pressure is required. A pilot chamber is used which is controlled by a direct acting solenoid valve. The movement of the plunger changes the pressure in the pilot chamber. When there is pressure in the pilot chamber the valve is closed. GEM-SOL pilot valves are equipped with diaphragm, according to the valve function.

- Two way valves have a bleeding passage in the diaphragm, through which the pilot pressure flows into the pilot chamber; and one orifice to release the pressure when the solenoid is energized.
- Three way valves have a three way pilot solenoid to control the pilot chamber pressure.
- Pilot operated valves require a minimum operating pressure.

### Zero differential valves

We also manufacture a two way pilot operated valve which works without differential pressure. For this type of valve, a mechanical spring helps to lift the diaphragm.

