Direct acting or pilot operated hung diaphragm solenoid valves: versions not requiring a minimum operating \( \Delta p \).

Pilot operated solenoid valves: versions requiring the minimum \( \Delta p \) indicated in the table in order to function correctly (see paragraph “Differential pressure”).

Drawing: in addition to the dimensional and construction characteristics, the drawing also indicates the correct direction of fluid flow by means of the following letters: P: inlet - A: outlet - R: exhaust

Maximum allowable pressure (PS): maximum static pressure that the valve can support without risk of leaks, breakages, deterioration or permanent deformation.

Opening time: time lapse between the solenoid valve energising and the instant in which the flow at the outlet reaches 90% of its maximum value.

Closing time: time lapse between the solenoid valve de-energising and the instant in which the flow at the outlet reaches 10% of its maximum value.

The opening/closing times stated are measured using air or water at 20°C. The times can be greatly influenced by the operating conditions (for example: fluid viscosity, type of electric signal, differential pressure).

Fluid temperature: maximum and minimum temperatures of the controlled fluid according to the solenoid valve materials. Make sure that the controlled fluid does not solidify or exceed the maximum allowed viscosity at very low temperatures. Also make sure that the fluid temperature does not affect its compatibility with the valve materials.

Ambient temperature: the stated values are a function of the coil encapsulation material and its insulation class. The above mentioned considerations about the minimum fluid temperature are also valid for the minimum ambient temperature. The maximum admissible ambient temperature is a function of both coil and controlled fluid temperature. The combined effect of all three temperatures must not allow the coil to exceed the temperature of insulation class (indicated in paragraph “Coil” in data sheet). The maximum ambient temperature stated on the data sheet is that which allows the solenoid valve to function with the coil and fluid at their respective maximum allowed temperatures.

Continuous duty: ED 100% indicates suitability of the coil to operate in “continuous service”, in other words constantly energised. In case of a lower ED, refer to the “energising time/de-energised” time diagrams or to the cycle time reported on the data sheet itself. If these values are not stated, a cycle time of 5 minutes must be considered for DC coils and 30 seconds for AC coils (Standard VDE580).

Protection degree: in order to guarantee the stated protection degree, coils with spade terminals (DIN 46340) must be equipped with connectors having the same protection degree. Also make sure that the connector gasket is suitable for the maximum temperature reached by the coil. When assessing the protection degree required for a particular application, careful consideration must also be given to possible phenomena such as condensation or defrosting, as well as to the ambient relative humidity.

Kv: indicates the quantity of water, expressed in m\(^3\)/h, that passes through the solenoid valve with a pressure drop of 1 bar and a temperature between 5°C and 30°C (Standard EN60730-2-8).

Differential pressure:
\( \Delta p \) min: indicates the minimum pressure difference between the inlet and outlet required for the correct operation of pilot operated solenoid valves. This value is zero for direct acting or pilot operated hung diaphragm solenoid valves.
\( \Delta p \) max: indicates the maximum pressure difference between the inlet and outlet at which the solenoid valve can function correctly.

Power absorption: indicates the apparent power during inrush and holding for AC (VA) and the ‘cold’ absorbed power for DC (W). The power absorptions are measured by energising the coil at nominal voltage at an ambient temperature of 20°C.