Instruction manual solenoid valve

(electropneumatic)

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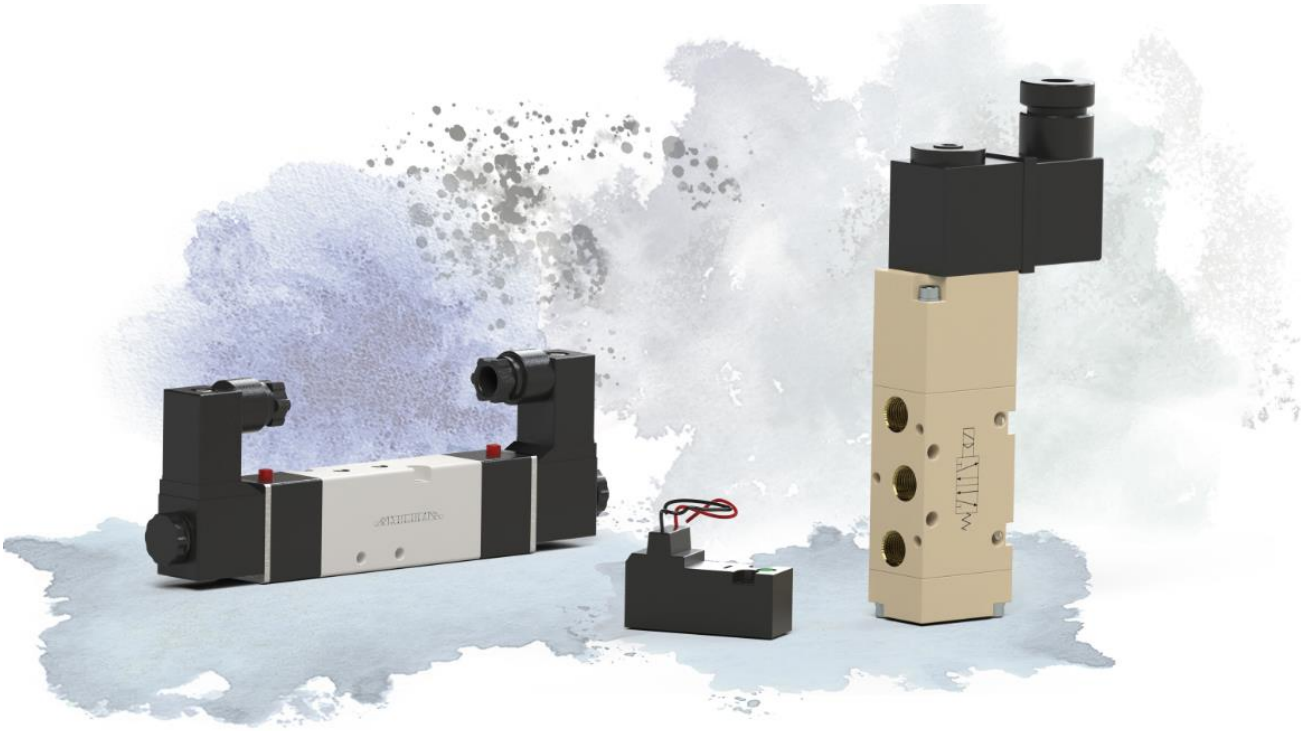

General

In pneumatics, solenoid valves are used to shut off the medium compressed air or to change the direction of flow. They differ in design, actuation, number of pneumatic connections and number of pneumatic switching positions. The prerequisite for trouble-free operation is correct design, professional installation and careful maintenance.

1. Intended use

Solenoid valves in pneumatics are designed exclusively for operation with cleaned compressed air according to quality class ISO 8573-1. They are not suitable for operation with other media such as liquids, toxic or explosive gases. They are used to control downstream pneumatic drives such as pneumatic cylinders and are only approved for proper and intended use in the industrial sector. Any warranty and manufacturer's responsibility will be voided in the event of non-compliance.

2. Safety instructions

The safety and health protection signs listed below are labels which (in relation to a specific object) allow a specific activity or a specific situation - in each case by means of a safety sign - to make a safety and health protection statement.

Commandment sign	A **command sign** is a safety sign that prescribes a certain behaviour.		Follow instructions
			Use hand protection
			Use hearing protection
Warning sign	A **warning sign** is a safety sign that warns of a risk or danger.		Warning of obstacles on the ground

The safety instructions are intended to protect against dangerous situations and/or property damage and contains important information to protect users and third parties from injury and/or to prevent damage to the system.

- To ensure correct use of the product, read this instruction manual.
- Read the instrcutions for associated equipment before use.
- Keep these instruction manual in a safe place for future reference.
- To ensure the safety of personnel and equipment, the safety instructions in this instruction manual and other relevant safety practices must be followed.

3. Selection of valve

3.1 Type of operation

The type of operation must be selected according to the specific requirements for the application. Mechanical, manual, hand, pneumatic and electropneumatic operated valves are available for selection. In the case of electropneumatically operated valves, additional attention must be paid to the correct selection of the voltage, the power consumption, the electrical connection and the function of the manual override (groping or latching).

3.2 Function / Type of valve
The function of the solenoid valves is selected according to the respective work requirements. Different valve types are available: 3/2, 5/2, 5/3-solenoid valves, each bistable or monostable. Furthermore, middle position closed, exhausted, vented are available for selection, which, however, only concerns the 5/3 solenoid valves. Other versions according to customer specifications, such as 2/2 or 4/2-valves, are available on request.

4. Storage

Solenoid valves must be protected against mechanical damage and left in their original packaging until assembly. They must be stored in a dry and dust-free place.

5. Installation and application

The following points for the operation of solenoid valves from RIEGLER & Co. KG must be checked and taken into account before installing the components. Do not install the product until the safety instructions have been read and understood. All technical specifications regarding performance and operating conditions must be observed.

- The machines and equipment may only be operated by appropriately trained personnel. The product may become unsafe if used improperly.
- Remove all transport, packaging and protective materials.
- If the product shows signs of transport damage, do not install.
- Take appropriate measures to exclude unintentional activation or impermissible interference.
- Ensure pressureless installation, only pressurize the system slowly after complete assembly.
- Note that pressurized lines and systems must not be loosened.
- Furthermore, it must be ensured that the installation conditions meet the technical requirements (voltage, actuating frequency, operating pressure and ambient temperature).

- The temperature at the installation site should be within the temperature range specified in the data sheet.
  Before carrying out any work on the system, allow it to cool down or heat up, or wear heat-resistant or cold-resistant protective gloves.
- Please refer to the data sheet for the corresponding permissible operating pressure.
- Check whether the type designation of the solenoid valve to be installed matches the required solenoid valve.
- Do not mount by force, under tension or under excessive load.
- Do not remove or cover the technical data printed or attached on the product.
- Only use suitable screw fittings that do not cause contamination of the valve interior.
- Before mounting the system, make sure that there is no contamination in the compressed air lines.
- When installing the product, make sure to leave enough space for performing maintenance and regular cleaning.

- Install solenoid valves as close as possible to the pneumatic cylinder or actuator to reduce air consumption and achieve a fast response.

- Ensure that the connections of piping or hoses and/or cables to the valves do not present a residual hazard in terms of tripping hazards for the plant operator or maintenance personnel.
- Always ensure proper handling. Damage must be avoided.
- Avoid sharp kinking of the air supply lines.
- Close unused compressed air connections on the valve.
- Only use the solenoid coils supplied. Spare coils are available on request.
- For solenoid valves with 24VDC and LED shift indicator, please ensure correct connection.
- Avoid electrostatic charges.
- For equipotential bonding, connect and ground all conductive metal parts including accessories.
- Maintain the composition of the medium once selected throughout the entire product life.
- Noise is generated by escaping air. The vent connections must be fitted with silencers or other devices to reduce noise. The pressure drop of silencers may have to be taken into account.

- Wear hearing protection when performing activities on the equipment.
- Verification of assembly conditions with air supply connected. After installation, first carry out function and leakage tests. If larger quantities of compressed air escape or the unit does not function properly, switch off the system.
- All legal regulations regarding safety must be taken into account.

5.1 Installation position:

Any installation position is permissible, preferably valve solenoid upwards so that condensate and oil do not flow towards the coil.

5.2 Environmental conditions

To avoid errors, the solenoid valve must not be used in the following environments:

- Places where contact with corrosive gases, organic solvents, chemicals, salt water, water and water vapor is possible.
- Valves must not be immersed in liquids.
- Environments with direct sunlight where UV rays leads to damage → use suitable protective cover.
- Environments with strong shock and vibration and near heat sources with poor ventilation.
- In extremely dusty environments where there is a risk of dust penetrating the inside of the product and drying out the grease. Where possible, suitable protective covers should be used.
- In an explosive atmosphere.

Observe the respective IP protection classes in which the solenoid valves are constructed.

Use the solenoid valves within its respective specified temperature and pressure range. The respective permissible technical characteristics of the solenoid valves can be found in the RIEGLER main catalog or in the data sheet, which is available for download at www.riegler.de.

5.3 Line connection

- Before assembly, check the valve connections and remove any possible contamination.
- During operation, hoses may come loose from the quick connectors and be ejected. In this case, depressurize the system and replace damaged parts.
- When connecting lines or fittings, make sure that no sealing material (adhesive) gets inside the valves. When using sealing tape, leave one and a half to two threads free at the end of the line or quick connector.

5.4 Lubrication

The solenoid valves do not require lubrication, but oiled compressed air can extend the life of the valves in certain cases. If the solenoid valves have been oiled once, make sure that they are oiled continuously.

6. Commissioning

Before the solenoid valve is put into operation, the above-mentioned safety regulations must be read. The commissioning of a solenoid valve, which is mounted in a plant ready for operation, may only be carried out in accordance with the plant-specific regulations.

- Switch on the compressed air/power supply to the control unit.
- Check all pipe/hose connections for tightness.
- Check function of optionally attached additional devices.
- Make sure that the permissible operating and control pressures are not exceeded.
- Avoid contamination → Dirt particles are the most frequent cause of malfunctions and damage!

6.1 Manual override

The manual override can be used to switch the solenoid valve manually. It is available in latching and non-latching versions:

- In the latching version, the valve switches and remains switched through until the manual override is reset.
- In the non-latching version, the valve switches back as soon as the manual override is released.

To switch the solenoid valve manually, actuation is either rotary, push or a combination, depending on the type. Use a small screwdriver to operate the manual override accordingly.

7. Maintenance, care and service

Failure to follow these instructions may cause malfunction of the product and damage to the device or equipment. Interventions in the device may only be carried out by authorized specialist personnel and with suitable tools.

- Maintenance work on machines and systems may only be carried out after it has been checked that they are in a safe switching state.
- Compressed air can be dangerous if not handled properly. Maintenance work on compressed air systems may only be carried out by appropriately trained personnel.
- Before carrying out maintenance work, it is essential to switch off the compressed air/power supply. Make sure that the air is vented to the atmosphere and that there is no more stored energy in the pneumatic circuit.
- After maintenance, connect the system to the operating pressure and power supply and perform the appropriate function and leakage tests to ensure that the equipment is installed correctly.
- Do not make any changes to the product.
- Do not load the solenoid valve by bending or torsion and do not place heavy objects on it.
- Make sure that the silencers attached to the solenoid valve remain clean and free of contamination during operation, as clogging will affect or impair proper operation.
- Dust deposits on heated surfaces are highly flammable, therefore RIEGLER recommends regular cleaning. When cleaning the solenoid valve, do not use abrasive, corrosive or flammable cleaning agents or high-pressure cleaning equipment.
- To maintain the proper functioning of the solenoid valves, RIEGLER recommends to check them regularly.
- The appropriate air purity must be ensured. In case of defective function, please contact the sales engineering department of RIEGLER & Co. KG.

8. Malfunctions and und trouble-shooting

In case of malfunctions, check the line connections, the operating voltage and the operating pressure. If this does not eliminate the fault, make sure that there is no pressure at the device, disconnect the device from the supply voltage and contact authorized and trained personnel or the technical support of RIEGLER & Co. KG.

9. Recycling and disposal

When disposing of solenoid valves and their transport, packaging and protective materials, the respective disposal regulations / environmental protection regulations must be observed and carried out via appropriate waste containers. Solenoid valves that cannot be repaired can be dismantled and fed into the recycling circuit in appropriate containers for used metals. In this case, attention must be paid to any residual toxic or corrosive media.