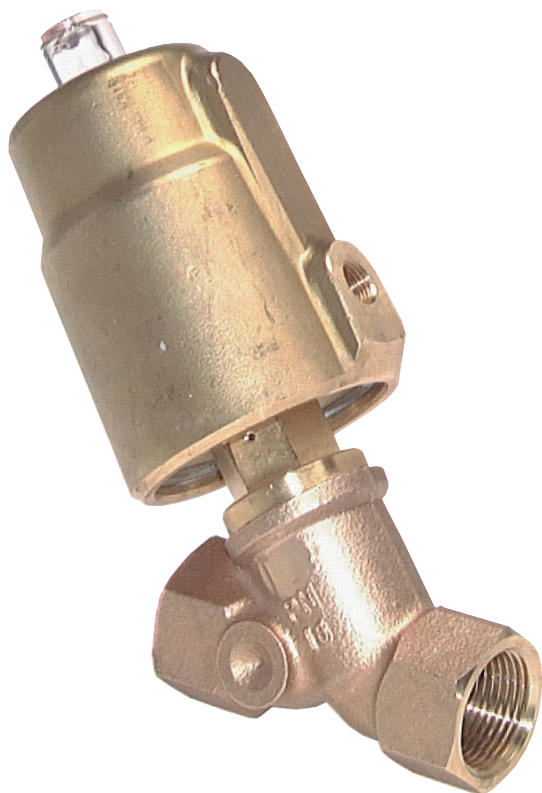


Datasheet

**2/2 way valves with external control -
air, closing with the medium flow**



Type: Brass



Type: Stainless steel: 1.4408

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2. Part numbers and technical data

Angle seat valves, pneumatically actuated

Materials:
Brass type: valve body: gunmetal (2 1/2" to 3": brass), seat seal: PTFE, stem seal: NBR, Control cylinder: brass/aluminum, Stem: stainless steel, Seals: NBR
Type 1.4408: Valve body: 1.4408, internal valve parts: 1.4301, seat and stem sealing: PTFE, control cylinder: nickel-plated brass/aluminum, stem: stainless steel, seals: FKM

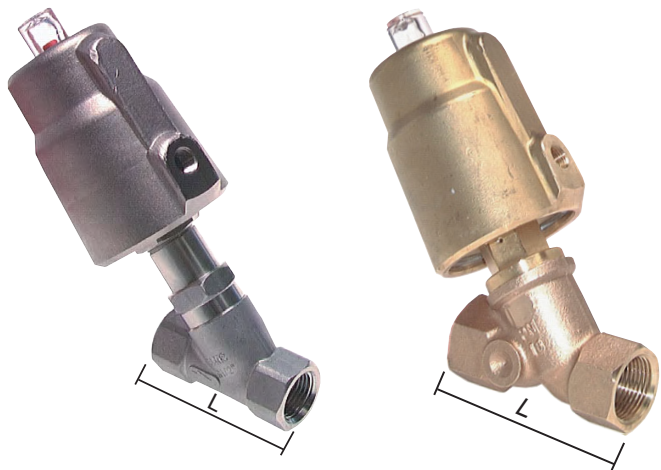
Temperature range: -20°C to max. +85°C (Type 1.4408: -40°C to max. +200°C)

Pilot pressure: 4 to 10 bar (6 bar optimal), pilot port: G 1/8".

Flow direction: closing with the media flow (not recommended for liquids at high flow rates). If necessary, use option -GS, closing against the medium flow.

* Optional: PTFE stem seal (up to 200°C) -PTFE2), version closing against the medium flow (for de3)n use with liquid), please ask for working pressure -GS, control cylinder made of stainless steel 1.4581 with seals made of FKM -2A

Type MESSING	Operating pressure	Lenght mm	~ Thread	Type SS - 1.4408	Operating Pressure	Lenght mm	Thread
APV212MSGSPTFE	0 - 16 bar	66	G 1/2"	<i>*this article is with PTFE Seal</i>			
APV212MSG	0 - 16 bar	66	G 1/2"	APV21216SSGS	0 - 16 bar	65	G 1/2"
APV234MSG	0 - 16 bar	75	G 3/4"	APV234SSGS	0 - 20 bar	75	G 3/4"
APV210MSG	0 - 10 bar	80	G 1"	APV21010SSGS	0 - 10 bar	90	G 1"
APV211410MSG	0 - 10 bar	97	G 1 1/4"	APV21147SSGS	0 - 7 bar	110	G 1 1/4"
APV21126MSG	0 - 6 bar	107	G 1 1/2"	<div>Zero position: closed</div>			
APV21128MSG	0 - 8 bar	107	G 1 1/2"				
APV220MSG	0 - 16 bar	124	G 2"				
APV22129MSG	0 - 9 bar	178	G 2 1/2"				
APV2305MSG	0 - 5 bar	206	G 3"				



3. Notes

These mounting and operating instructions must be observed. Compliance with the limit values for pressures and temperatures and observance of the instructions for the device according to the data sheet and delivery bill is a prerequisite for trouble-free operation with a long service life. For applications in the safety area, also observe the national regulations. In case of non-observance of these instructions, any liability on our part is void, as well as the warranty on devices and accessories.

Important, control medium:

The control medium must be neutral, clean, gaseous or liquid. In the case of air, ensure that the air is dry and that condensation does not freeze when used outdoors.

Notes on the Pressure Equipment Directive:

All valves are designed and manufactured in accordance with EU Directive 97/23/EC (Pressure Equipment Directive). Devices which do not have a CE mark on the body are covered by Article 3(3) of the Directive. They are designed and manufactured in accordance with "good engineering practice" and must not bear CE markings.

4. Function

4.1 Function of direct-pressure controlled valves:

In the standard version, the direct-pressure-controlled valve is always closed by spring force. When control pressure is applied to the actuator, the control spool and thus the valve disk are lifted from the valve seat. The valve is opened.

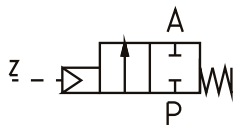
Pressure surges with high energy can occur when switching liquid media with high flow velocities.

The high closing force of the spring increases the pressure surges. In this case, the design closing against the medium flow is more effective. In the rest position, the control pressure in the actuator relieves the pressure.

The valve is closed by spring force.

4.2 Function of forced-pressure controlled valves:

In the standard version, the forced-pressure controlled valve is always closed by spring force. When pilot pressure is applied to the actuator, the pilot bore opens and the medium pressure is reduced. The coupled sealing element is lifted directly from the valve seat by the actuator. If there is a pressure difference between "P" and "A", this supports the opening process.



5. Storage and transport

The valves must be stored properly and protected in a clean, dry place. For handling heavy valves, only use the eyelets provided for this purpose or suitable load-bearing straps on the valve body. Never use the actuator as a carrying handle or lever arm!

6. installation

The installation direction or flow direction of the valve must be observed. The valve is designed for one flow direction and its function is fixed. The function is not guaranteed if the valve is installed in the wrong direction. The risk is prevented by permanently legible engraved markings on the connections: P for inlet, A for outlet and R for return or, in the case of 3/2-way valves, for 2nd outlet. In addition, the risk is limited by the fact that the direction of flow is indicated on the valves by an arrow, clearly visible on the valve body.

Compare the direction of the arrow or the connection marking (P, A, R) on the body with the flow direction of the medium. Please do not use the actuator as a lever before mounting the valve with threaded port.

According to DIN 3394 as well as DIN EN 161, a strainer must be installed upstream of each shut-off valve to ensure proper functioning when operating with neutral media. Contamination can cause clogging of small holes, such as the pilot or exhaust hole, and can restrict or even block functions such as closing/opening the valve.

The installation position of the industrial valves is fixed with the actuator in the upright position in a horizontal line. Depending on the plant, there may be a requirement for other installation positions, which are taken into account by application-oriented designs or versions. This can only be taken into account if the customer is informed accordingly. The risk is that the industrial valve will not function.

7. Start-up

Depending on the application, higher or lower surface temperatures than ambient temperatures can occur at the valve bodies due to the medium. In plant engineering, lines with high temperature differences to the ambient temperature are normally insulated accordingly for energy reasons. This insulation should also include the housing of the industrial valve. Insulation of the housing eliminates the possible risk of burns. The decision regarding insulation is made by the plant manufacturer and therefore falls within his area of responsibility. Finally, there remains a small residual risk due to increased surface temperature at the solenoid coil, which depends on the switching frequency. Attention: Surface temperature can be higher than 100°C!

Some valves are equipped with an adjustable closing regulation, which is set at the factory for safe valve function with regard to closing time at a media viscosity of up to 22 mm²/s. The setting is made by means of a countered adjusting screw. The setting is made by means of a countered adjusting screw and can, if necessary, be adjusted or readjusted by the customer to suit the specific plant. This gives rise to the risk that, in the event of improper handling, the adjusting screw could be completely removed during operation and medium could escape to the outside through the control bore. Furthermore, the closing time is set in the factory in such a way that up to the specified viscosity of the medium, no or only slight pressure surges occur for the piping system. However, an adjustment by the customer / plant operator may be necessary (depending on the viscosity of the medium). For this reason, the adjustment screw must not be fixed. It is therefore the responsibility of the plant operator to have the adjustment carried out by qualified personnel during commissioning of the plant and thus to prevent the risk of complete removal of this adjusting screw.

When the industrial valve is operated within the plant, electrostatic charges occur due to the flow. In plant engineering, these are normally discharged separately by a cable connection or via the electrically conductive piping system by grounding. There are threaded holes on the housing of the industrial valve for a possible cable connection.

8. Possible incidents

Check flow direction, voltage, place of use and operating pressure!

- **Valve does not close**
 - Spindle blocked
 - Control pressure does not relieve
 - Closing spring defective
 - Arrow direction not identical with flow direction
- **Valve does not open**
 - Control pressure too low
 - Operating pressure too high
- **Viscosity of the medium**
 - If the values specified in the technical data are exceeded, the switching times increase.
 - The overall function of the valve must be questioned.

9. Interventions

Interventions may only be carried out by qualified personnel and with suitable tools. When disassembling or carrying out repair work on the pressure line or the control cylinder, be careful! Components may be under strong spring tension and may cause injury if disassembled in an uncontrolled manner. In the case of valve versions deviating from the standard, due to the valve options of various types or special valve versions, please adhere to the technical specifications according to the delivery bill or previous quotation. In these cases, these operating instructions can only be used to a limited extent.

10. mode of operation

In the rest position, the valve is closed by spring and medium pressure. When pilot pressure is applied to the actuator, it lifts the spool and simultaneously the valve disk - the valve opens.

