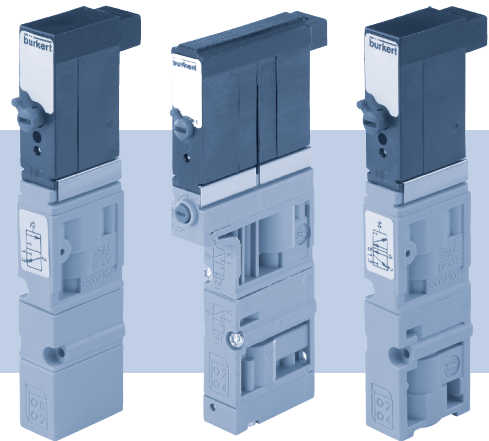


Type 6524/6525

3/2-, 2x3/2- or 5/2-way solenoid valve for pneumatics



Operating Instructions

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1 OPERATING INSTRUCTIONS

The operating instructions contain important information.

- ▶ Carefully read these instructions and follow the safety information.
- ▶ Keep the manual and make it available to every user.
- ▶ People who work on the device must read and understand these instructions.

1.1 Symbols



DANGER!

Immediate danger! Fatal or serious injuries.



WARNING!

Potential danger! Fatal or serious injuries.



CAUTION!

Danger! Moderate or minor injuries.

NOTE!

Warns of damage.

- ▶ Indicates instructions to avoid danger.
- Indicates a procedure you need to carry out.

2 INTENDED USE

The device serves exclusively as a 3/2-, 2x3/2- or 5/2-way solenoid valve for the media that is permitted based on the data sheet for the corresponding type.

- ▶ Do not use the device outdoors.
- ▶ Use the device only in conjunction with third-party devices and components that are recommended or approved by Bürkert.
- ▶ Prerequisites for safe and trouble-free operation include correct transportation, correct storage, installation, start-up, operation and maintenance.
- ▶ Observe the permissible data, operating conditions and conditions of use of the respective devices or products. These specifications can be found in the contract documents, operating instructions and on the type label.
- ▶ Use the device only as intended. Improper use of the device may be dangerous to people, nearby equipment and the environment.

2.1 Definition of terms

| Term | Definition for these instructions |
|--------|---------------------------------------|
| Device | Solenoid Valve Type 6524 or Type 6525 |

3 BASIC SAFETY INSTRUCTIONS

These safety instructions do not take into account any unforeseen circumstances and events which occur during installation, operation and maintenance. The operator is responsible for observing the location-specific safety regulations, also with reference to personnel.



Risk of injury due to high pressure and any escaping media.

- ▶ Switch off the pressure before working on the device or system. Vent or empty the lines.

Danger of injury due to unconnected compressed-air hoses whipping around

- ▶ Check all hose connections are seated properly before applying compressed air to the valve.

Risk of injury from electric shock.

- ▶ Switch off the power supply before working on the device or system. Secure against reactivation.
- ▶ Observe the applicable accident prevention and safety regulations for electrical devices.

Risk of burns or fire from hot device surfaces due to longer duty cycles.

- ▶ Only touch the device when wearing protective gloves.
- ▶ Keep the device away from highly flammable substances and media.

General hazardous situations.

Observe the following to prevent injuries:

- ▶ Observe the general rules of technology.
- ▶ In a potentially explosive atmosphere, only use devices that are approved for this purpose. These devices are identified by a separate “Ex” type label. Before use, note the information on the separate Ex type label and the Ex additional instructions or the separate Ex operating Instructions.
- ▶ Only use the device when it is in a perfect state and in accordance with the operating instructions.
- ▶ Secure the device or system to prevent unintentional activation.
- ▶ After an interruption in the power supply, ensure that the process is restarted in a controlled manner.
- ▶ Do not modify the device.
- ▶ Do not mechanically load the device.
- ▶ Only trained technicians may perform installation and maintenance work.

- ▶ Only use suitable tools to perform installation and maintenance work.
- ▶ To avoid pressure drops during switching, make the pressure supply volume is as large as possible.
- ▶ Operate the device only with direct current.
- ▶ Install the device according to the regulations applicable in the respective country.

3.1 Variant PF34 for safety-related shutdown



DANGER!

Risk of injury from uncontrolled process

- ▶ The system operator must ensure that the safety-related shutdown does not trigger a dangerous, uncontrolled process.

NOTE!

Electrostatically sensitive components / assemblies

The device contains electronic components that are susceptible to the effects of electrostatic discharging (ESD). Components are at risk if they come into contact with electrostatically charged persons or objects. In the worst-case scenario, they will be destroyed immediately or will fail after start-up.

- ▶ Observe the requirements for minimising or avoiding the possibility of damage caused by sudden electrostatic discharge in accordance with EN 61340-5-1.
- ▶ Do not touch electronic components when the supply voltage is connected.

4 STRUCTURE AND DESCRIPTION



Type 6524
3/2-way valve



Type 6524
2 x 3/2-way valve



Type 6525
5/2-way valve

The valves consist of a rocker pilot solenoid valve (Type 6144) and a pneumatic seat valve. Pilot valve and body are clamped together. The principle allows the switching of high pressures together with low power consumption and fast switching times.

The valves can be lined up and with plug connections at the rear are preferably used for valve islands; with tag connectors at the front they are preferably used on valve blocks to control pneumatic actuators.

All pilot valves are equipped with a manual override as a standard.

4.1 Variant PF34 for safety-related shutdown

The PF34 variant of the Type 6524 and 6525 valves is equipped with an additional cable. It allows the valve circuit to be interrupted by an external switch or sensor.

The PF34 variant has no manual override.

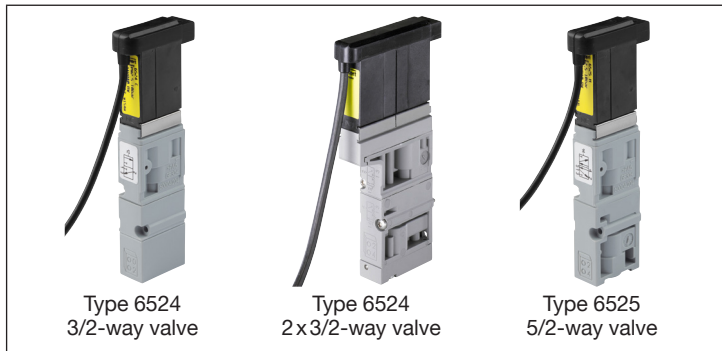


Fig. 1: Variant PF34 for safety-related shutdown

5 TECHNICAL DATA

5.1 Operating conditions



WARNING!

Risk of injury due to malfunction if used outdoors.

- ▶ Do not use the device outdoors.
- ▶ Avoid heat sources that could lead to the permissible temperature range being exceeded.

NOTE!

Operate valve at temperatures below 0 °C only with dry air.

| | |
|------------------------|--|
| Ambient temperature | -10...+55 °C |
| Medium temperature | -10...+50 °C |
| Medium | <ul style="list-style-type: none">• Filtered compressed air (max. particle size 5 µm), preferably oil-free and dry (operation with oiled air is possible)• Neutral gases, air |
| Compressed air quality | ISO 8573-1:2010 |

| | |
|--|---|
| Degree of protection | IP40 with rectangular plug |
| Installation position | Any, preferably actuator face up |
| Manual override | Standard |
| Protection class | III according to VDE 0580 |
| Switching times [ms] See data sheet | Measurement at valve outlet at 6 bar and +20 °C: Opening pressure build-up 0...90 % Closing pressure reduction 100...10 % |
| Materials | See data sheet |

5.2 Electrical data

| | |
|---|--|
| Operating voltage | 24 V \equiv |
| Voltage tolerance | $\pm 10\%$ |
| Nominal power | 1 W |
| Nominal operating mode | Continuous operation (100% duty cycle) |
| Electrical connection: On valve Valve island Valve block | Rectangular connector With grid 5.08 mm With integrated plug socket IP40 with rectangular connector |

5.3 Type label (example)

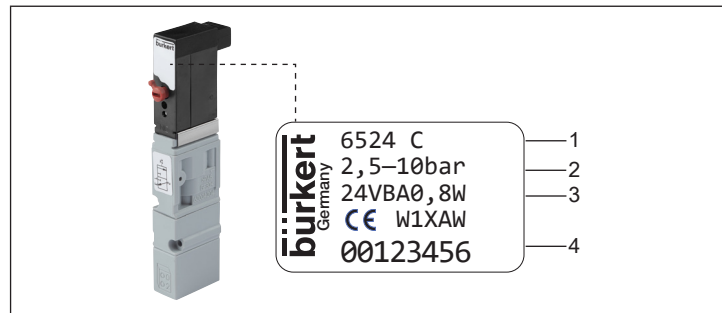
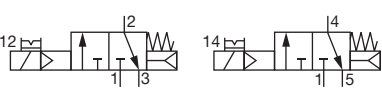
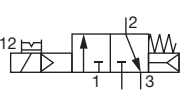
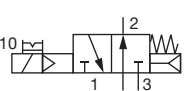
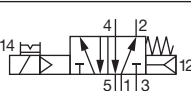


Fig. 2: Example of a type plate inscription

| Items | Text | Description |
|-------|-----------|----------------------------|
| 1 | 6524 | Device type |
| | C | Circuit function |
| 2 | 2,5-10bar | Permitted pressure range |
| 3 | 24VBA0 | Voltage ($\pm 10\%$) |
| | 8W | Power |
| 4 | 00123456 | Order number of the device |

Table 1: Description of the type plate inscription

5.4 Circuit functions (CF)

| | |
|--|---|
|  | C, 2x3/2-way Outlet 2 and outlet 4 vented when idle. |
|  | C, 3/2-way valve Output 2 vented when idle |
|  | D, 3/2-way valve Pressure port 1 connected to outlet 2 when idle |
|  | H, 5/2-way valve Pressure port 1 connected to outlet 2 when idle, outlet 4 vented |

6 ASSEMBLY / INSTALLATION



WARNING!

Risk of injury due to improper installation

- ▶ Only trained technicians may perform installation work.
- ▶ Only carry out installations with suitable tools.
- ▶ Secure the system against unintentional activation.
- ▶ Following installation, ensure a controlled restart.



WARNING

Risk of injury due to uncontrolled movement of the actuators

Back pressure in the exhaust air ducts can cause uncontrolled movements of the actuators.

- ▶ Use large-volume silencers.

Prior to installation

→ Clean pipelines.

→ If necessary, connect a dirt trap (5 µm) upstream.

Installation position

Any installation position, preferably with the actuator facing up.

6.1 Installation of the valve on the valve block

- Place the valve on the valve block, ensuring that the flange seal is correctly inserted (see “Fig. 3”).
- Screw on the valve (for sequence and tightening torques see “Fig. 3”).

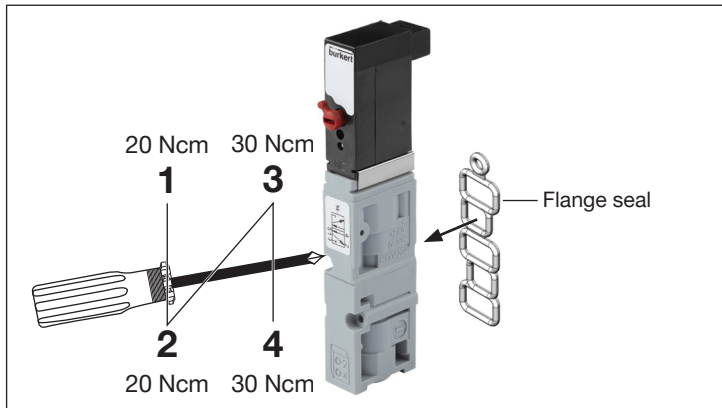


Fig. 3: Installation of the valve on the valve block, tightening torques

6.2 Electrical installation pilot valve



DANGER!

Risk of injury from electric shock.

- ▶ Switch off the power supply before working on the device or system. Secure against reactivation.
- ▶ Observe the applicable accident prevention and safety regulations for electrical devices.

NOTE!

- ▶ Observe voltage.
- ▶ In case of alternating voltage, a rectifier must be connected in series.

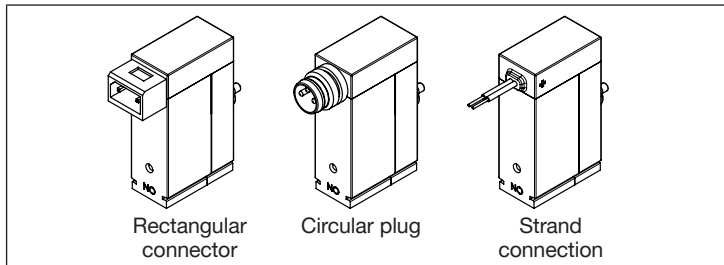


Fig. 4: Connection options Type 6144 pilot valve

→ Observe the type plate information on voltage, electrical power and current type. Voltage tolerance $\pm 10\%$.

At 100% duty cycle and maximum ambient temperature the coil heats up

in single assembly to approx. $+105\text{ }^{\circ}\text{C}$
 in block assembly to approx. $+120\text{ }^{\circ}\text{C}$

6.2.1 Pin assignment

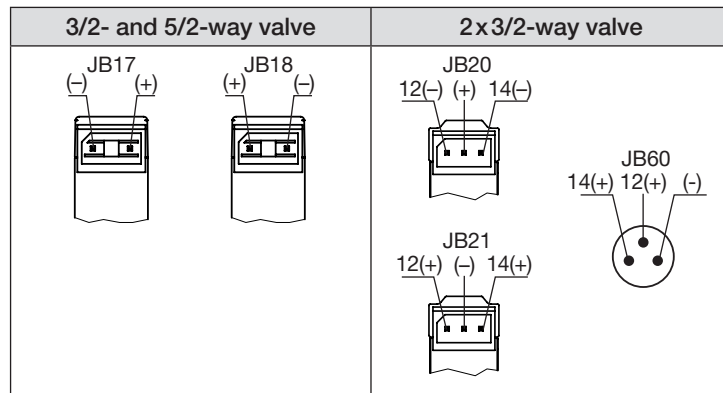


Fig. 5: Pin assignment 3/2-, 5/2- and 2x3/2-way valves

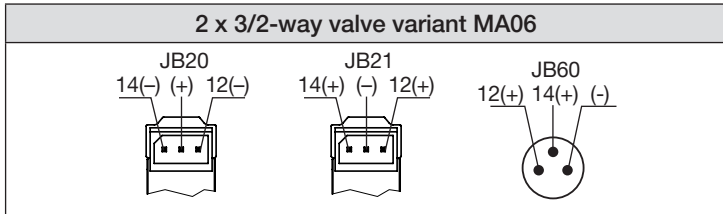


Fig. 6: Pin assignment 2 x 3/2-way valve variant MA06 with electrical connection rotated by 180°.

6.2.2 Pin assignment variant PF34 for safety-related switch-off

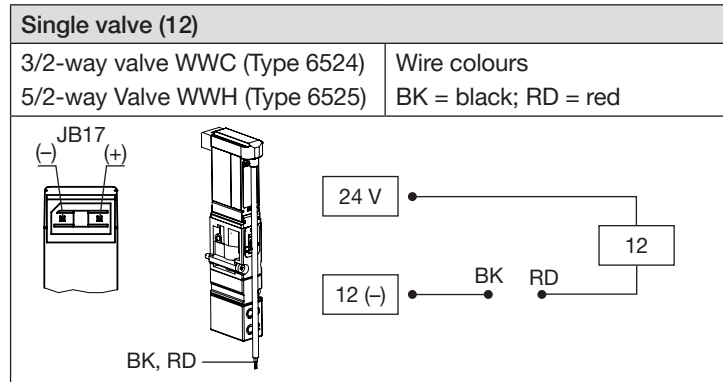


Fig. 7: Pin assignment variant PF34, 3/2- and 5/2-way valve

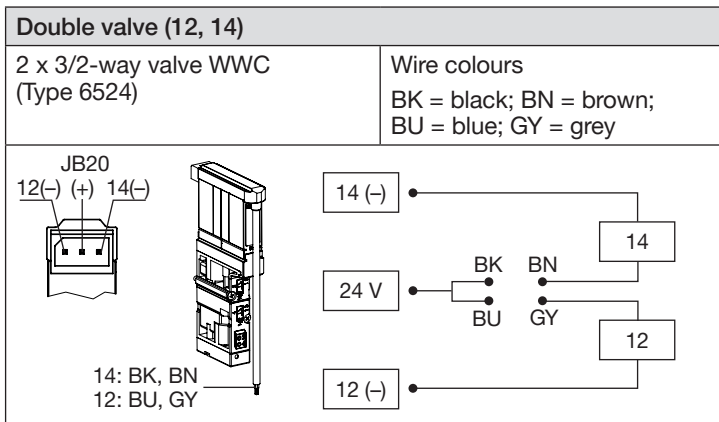


Fig. 8: Pin assignment variant PF34, 2x3/2-way valve

6.3 Pilot valve manual override

To operate the valve manually, turn the manual override 90° in the direction of the arrow on figure 1.

This puts the valve into the switched state.

The valve remains fixed in the switched state until the manual override is turned back to its original position.

For the double valve 2x3/2-way, the upper manual override switches output 2 (A) while the lower manual override switches output 4 (B).

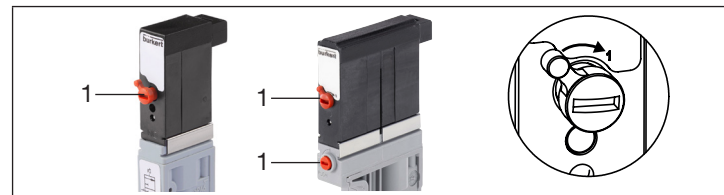


Fig. 9: Manual override of the pilot valve

| Pos. | Designation |
|------|-----------------|
| 1 | Manual override |

6.4 Pneumatic installation



DANGER!

Risk of injury due to high pressure and any escaping media.

- ▶ Switch off the pressure before working on the device or system. Vent or empty the lines.



Make the pressure supply as large-volume as possible.

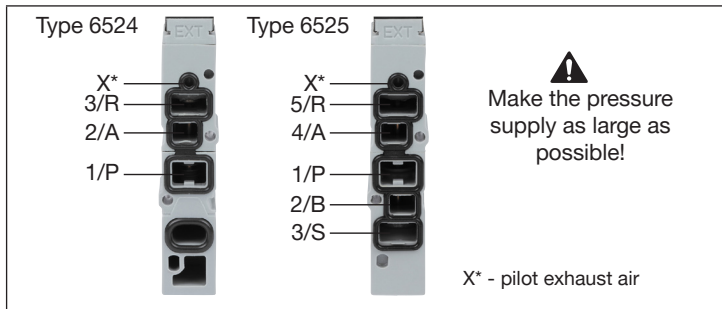
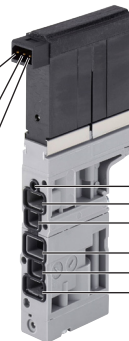


Fig. 10: Position of the connections, Type 6524 3/2-way valve and Type 6525 5/2-way valve

Type 6524
(2 x 2/3-way valve)

- pole coil 12
actuated via bit “n+1”
- + pole
- pole coil 14
actuated via bit “n”

Flange pattern “FM20”



⚠ Observe pin assignment!

12 Hand lever assignment
14

X* — pilot exhaust air

5/R

4/A

1/P

2/B

3/S

Bit “n”

Bit “n+1”

Fig. 11: Position of the connections, 2x3/2-way valve Type 6524

NOTE!

- ▶ Before the pneumatic installation, check the compatibility with the valve island in question by means of the valve’s article number (see the operating instructions of the corresponding valve island).

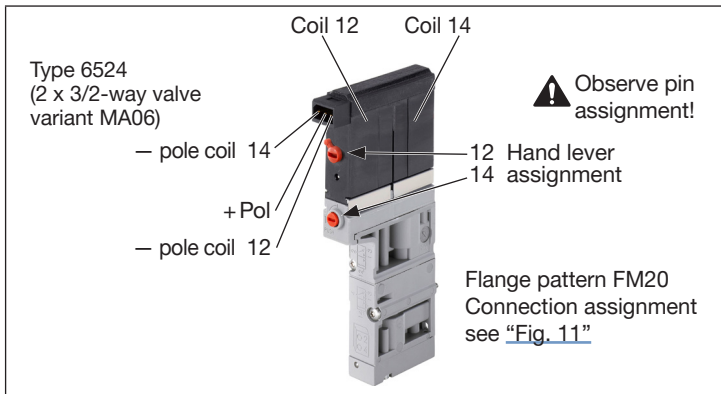


Fig. 12: Position of the connections, 2 x 3/2-way valve variant MA06 with electrical connection rotated by 180

7 START-UP



WARNING!

Risk of injury due to improper operation.

- ▶ Prior to start-up, it must be ensured that the operating personnel are familiar with and fully understand the contents of the operating instructions.
- ▶ Only authorised technicians may start up the device or system.

- Check correct connection of pressure and tension.
- For electrical operation, unlock the manual override (0-position).
- Create print first.
- Then apply voltage.
- Make sure that the maximum operating data (type label) are not exceeded.

8 MAINTENANCE, TROUBLESHOOTING



WARNING!

Risk of injury due to improper maintenance work.

- ▶ Only trained technicians may perform maintenance work.
- ▶ Secure the system against unintentional activation.
- ▶ Ensure a controlled restart after maintenance is completed.

The valves are maintenance-free when operated according to the instructions in this manual.

| Fault | Possible cause | Remedy |
|----------------------|---|---|
| Valves do not switch | No operating voltage or operating voltage too low | Check electrical connection Ensure operating voltage according to type label |
| | Manual override not in neutral position | Bring manual override to zero position. |
| | Pressure supply insufficient or not available | Set up large-volume pressure supply (also for upstream devices such as pressure regulators, maintenance units, on/off valves, etc.) |

| Fault | Possible cause | Remedy |
|---|---|---|
| Valves switch with a delay or blow off at the exhaust ports | Pressure supply insufficient or not available | Set up large-volume pressure supply (also for upstream devices such as pressure regulators, maintenance units, on/off valves, etc.) |
| | Valves are not in home position (de-energized) during pressure build-up | Apply pressure to the valve block before the valves are switched. |
| | Insufficient ventilation of the exhaust air ducts due to too small or dirty silencers (back pressure) | Use suitably sized silencers or expansion vessels. Clean the dirty silencers. |
| | Impurities or foreign matter in the pilot or main valve | Apply pulsed pressure to the exhaust air ducts to blow out the impurities. Install a new pilot or main valve. |

9 DISASSEMBLY



DANGER!

Risk of injury due to high pressure and any escaping media.

- ▶ Switch off the pressure before working on the device or system. Vent or empty the lines.

Risk of injury from electric shock.

- ▶ Switch off the power supply before working on the device or system. Secure against reactivation.
- ▶ Observe the applicable accident prevention and safety regulations for electrical devices.



WARNING!

Risk of injury due to improper disassembly.

- ▶ Only trained technicians may perform disassembly work.

→ Loosen the two fastening screws.

→ Carefully pull the valve off the valve block.

10 TRANSPORTATION, STORAGE, DISPOSAL

NOTE!

Damage in transit due to inadequately protected devices.

- ▶ Protect the device against moisture and dirt in shock-resistant packaging during transportation.
- ▶ Observe permitted storage temperature.

Incorrect storage may damage the device.

- ▶ Store the device in a dry and dust-free location.

Permitted storage temperature: $-20\dots+65$ °C.

Damage to the environment caused by device parts that are contaminated with media.

- ▶ Dispose of the device and packaging in an environmentally-friendly manner.
- ▶ Observe applicable disposal and environmental regulations.

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