

EB 8220 EN

Translation of original instructions



Fig. 1: *Type 3335/AT*



Fig. 2: *Type 3335/3278 with mounted positioner*

Type 3335/AT and Type 3335/3278 Pneumatic Shut-off Butterfly Valves

Note on these mounting and operating instructions

These mounting and operating instructions assist you in mounting and operating the device safely. The instructions are binding for handling SAMSON devices.

- For the safe and proper use of these instructions, read them carefully and keep them for later reference.
- If you have any questions about these instructions, contact SAMSON's After-sales Service Department (aftersaleservice@samson.de).



The mounting and operating instructions for the devices are included in the scope of delivery. The latest documentation is available on our website at www.samson.de > **Service & Support** > **Downloads** > **Documentation**.

Definition of signal words

DANGER

Hazardous situations which, if not avoided, will result in death or serious injury

WARNING

Hazardous situations which, if not avoided, could result in death or serious injury

NOTICE

Property damage message or malfunction

Note

Additional information

Tip

Recommended action

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1 General safety instructions

- The shut-off butterfly valve is to be mounted, started up or serviced by fully trained and qualified personnel only; the accepted industry codes and practices are to be observed. Make sure employees or third persons are not exposed to any danger.

According to these mounting and operating instructions, trained personnel refers to individuals who are able to judge the work they are assigned to and recognize possible dangers due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.

- All safety instructions and warnings given in these mounting and operating instructions, particularly those concerning installation, start-up and maintenance, must be strictly observed.
- To ensure appropriate use, only use the shut-off butterfly valve in applications where the operating pressure and temperatures do not exceed the specifications used for sizing the regulator at the ordering stage. The manufacturer does not assume any responsibility for damage caused by external forces or any other external factors.
- Any hazards that could be caused in the shut-off butterfly valve by the process medium, the operating pressure, the signal pressure or by moving parts are to be prevented by taking appropriate precautions.
- Proper shipping and storage are assumed.

WARNING

- *For installation and maintenance, make sure the relevant section of the pipeline is depressurized and, depending on the process medium, drained as well. Depending on the field of application, allow the shut-off butterfly valve to cool down or heat up to reach ambient temperature before starting any work on it.*
 - *When working on the shut-off butterfly valve, make sure that the pneumatic air supply as well as the control signal are disconnected to prevent any hazards caused by moving parts.*
 - *Be particularly careful if the actuator springs of pneumatic shut-off butterfly valves are preloaded. Such actuators are labeled correspondingly and can also be identified by three long bolts protruding from the bottom of the actuator. Before starting any work on the shut-off butterfly valve, relieve the compression from the preloaded springs.*
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2 Design and principle of operation

The pneumatic butterfly control valve consists of the Type 3335 Butterfly Valve and either the SAMSON PFEIFFER Type AT or Type 3278 Pneumatic Rotary Actuator.

The butterfly valve is mainly designed for on/off service in process engineering and plants with industrial requirements.

The butterfly valve can also be used for throttling service in the rotation range from 25° to 60°.

The medium flows through the butterfly valve. The signal pressure applied to the rotary actuator determines the position (opening angle) of the butterfly disk (4) and thus the cross-sectional area of flow between the butterfly disk and body (2).

The actuator motion is transmitted to the shaft by an adapter (9) with a square drive or single key drive.

Fail-safe action:

The fail-safe position of the butterfly valve upon supply air (signal pressure) failure is determined in Type 3335/AT (Type SRP single-acting version) by the version used and in Type 3335/3278 by how the rotary actuator is mounted to the valve.

Fail-close

When the pressure is relieved from the rotary actuator or the supply air fails, the actuator springs close the valve.

The valve opens opposing the force of the actuator springs when the signal pressure increases.

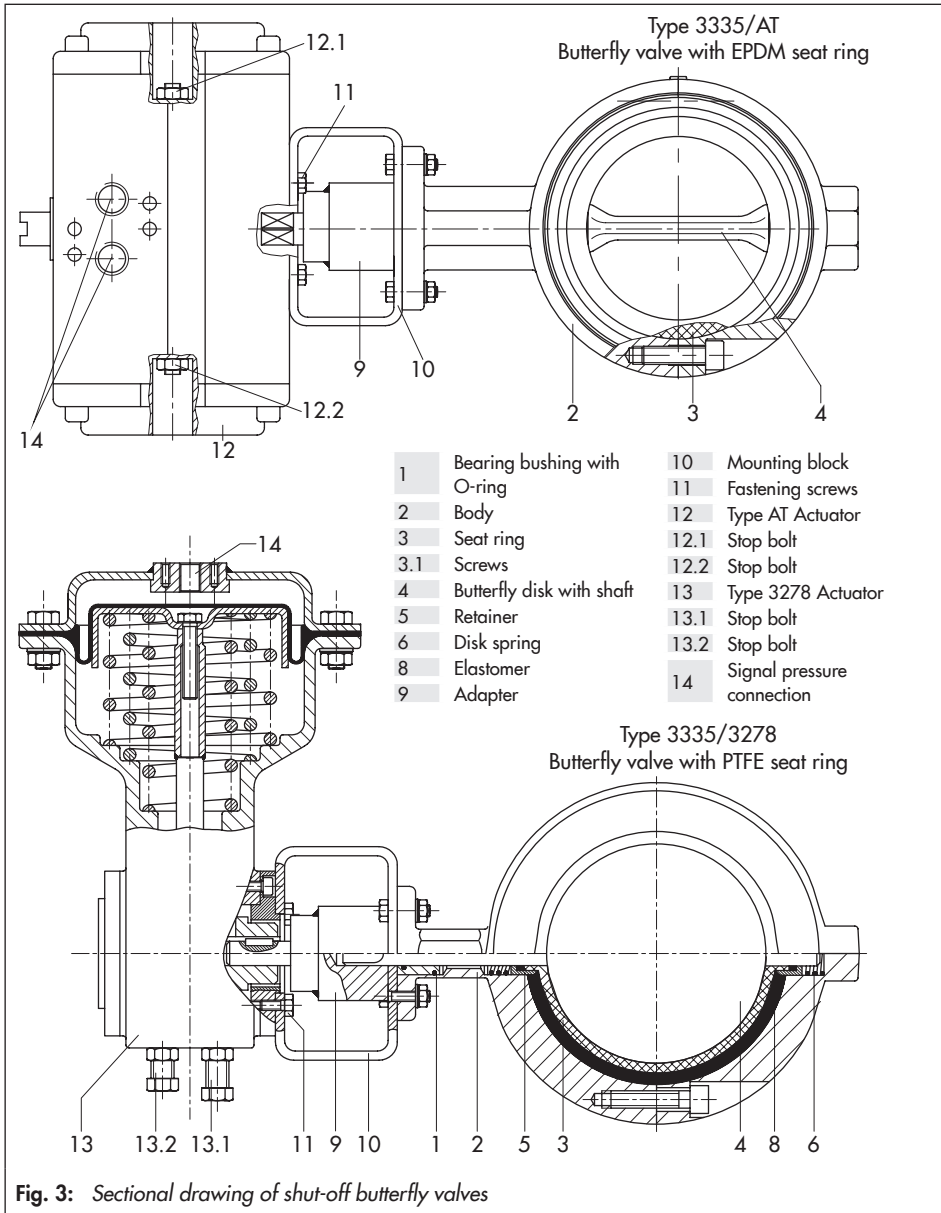
Fail-open

When the pressure is relieved from the rotary actuator or the supply air fails, the actuator springs open the valve.

The valve closes opposing the force of the actuator springs when the signal pressure increases.

The Type DAP Rotary Actuator (double-acting) has no springs. A defined final position is not reached when the supply air fails.

General safety instructions



3 Installation

3.1 Assembling butterfly valve and rotary actuator

3.1.1 Type 3335/AT

SRP version

Proceed as follows if the butterfly valve and actuator have not been assembled by SAMSON, proceed as follows:

! NOTICE

In the standard actuator version (SRP = single-acting with spring return mechanism), the spring return mechanism is designed to close the butterfly valve in the clockwise direction when no signal pressure is applied. If you require a different direction of rotation or a double-acting actuator (DAP = double-acting without spring return mechanism), this specification must be submitted on ordering the actuator.

The square drive allows the actuator to be mounted on the butterfly valve offset at angles of 90° in such a way that it is either in the upright or horizontal position to meet the installation requirements.

Fail-close

1. Place the butterfly disk (4) in the closed position (0° opening angle).
2. Push the actuator over the square drive adapter (9) of the shaft and fasten it tight to the mounting block (10) using the four screws (11).
3. Apply a signal pressure to the signal pressure connection which corresponds to the number of actuator springs (see nameplate).
4. Turn the stop bolt (12.1) until the disk stops at an opening angle of 90°.
5. Lock the position of the stop bolt with the lock nut.

Fail-open

1. Place the butterfly disk (4) in the open position (0° opening angle).
2. Push the actuator over the square drive adapter (9) of the shaft and fasten it tight to the mounting block (10) using the four screws (11).
3. Apply a signal pressure to the signal pressure connection (14) which corresponds to the number of actuator springs (see nameplate).
4. Adjust the stop bolt (12.2) at the point where the butterfly valve is completely closed.
5. Lock the position of the stop bolt with the lock nut.

3.1.2 Type 3335/3278

Proceed as follows if the butterfly valve and actuator have not been assembled by SAMSON, proceed as follows:

For **fail-close** valves, mount the butterfly valve onto the flange 2 of the actuator housing and flange 1 for **fail-open** valves.

'1' or '2' is marked on the corresponding side of the actuator housing (12 or 13).

The four feather key notches on the actuator shaft arranged every 90° allow the rotary actuator to be mounted on the butterfly valve offset at angles of 90° in such a way that it is either in the upright or horizontal position to meet the installation requirements.

Fail-close

1. Completely undo both stop bolts (13.1 and 13.2) on the rotary actuator. Turn the stop bolt (13.2) clockwise until the grooves of the actuator shaft are aligned with the actuator axis horizontally or vertically.
2. Place the butterfly disk (4) in the closed position (0° opening angle).
3. Push the actuator over the adapter (9) of the shaft and fasten it tight to the mounting block (10) using the four screws (11).
4. Undo the stop bolt (13.2) again.
5. Apply a signal pressure to the signal pressure connection which corresponds to the lower spring range value (see nameplate).
6. Adjust the stop bolt (13.2) for the closed position at the point where the butterfly valve is completely closed.
7. Apply a signal pressure to the signal pressure connection which corresponds to the upper spring range value.
8. Turn the stop bolt (13.1) clockwise until the disk stops at an opening angle of 90°.
9. Lock the position of both stop bolts with the lock nuts.

Fail-open

1. Completely undo both stop bolts (13.1 and 13.2) on the rotary actuator. Turn the stop bolt (13.1) clockwise until the grooves of the actuator shaft are aligned with the actuator axis horizontally or vertically.
2. Place the butterfly disk (4) in the open position (90° opening angle).
3. Push the actuator over the adapter (9) of the shaft and fasten it tight to the mounting block (10) using the four screws (11).
4. Undo the stop bolt (13.1) again.
5. Apply a signal pressure to the signal pressure connection which corresponds to the upper spring range value (see nameplate).
6. Adjust the stop bolt (13.1) at the point where the butterfly valve is completely closed.
7. Apply a signal pressure to the signal pressure connection which corresponds to the lower spring range value.
8. Turn the stop bolt (13.2) clockwise until the disk stops at an opening angle of 90°.
9. Lock the position of both stop bolts with the lock nuts.

3.2 Mounting position

The butterfly valve can be installed into a pipeline either in the upright or horizontal position. However, the following points must be observed:

- ➔ Install the butterfly valve into the pipeline in such a way that the bottom half of the disk opens in the direction of the flow.

This helps to prevent dirt deposits from accumulating and blocking the butterfly valve when it opens.

! NOTICE

When installing the butterfly valve between the pipe flanges, do not use any flange gaskets since the seat ring (3) of the butterfly valve also seals off the flanges.

Do not let the butterfly disk project beyond the valve flange under any circumstances. Before installing the valve, move the butterfly disk to the closed position.

- ➔ When tightening the flange bolts, center and tighten the flanges in an even pattern to prevent the lining from being damaged.
- ➔ The butterfly disk must be able to move freely after installation in the pipeline is completed.

3.3 Signal pressure connection

The signal pressure connection is designed as a borehole with a G ¼ female thread.

The type of connection allows a solenoid valve (e.g. Type 3963) to be also mounted according to VDE/VDE 3845.

The corresponding accessories are available to mount SAMSON positioners.

4 Operation

4.1 Changing the fail-safe action

The fail-safe action of Type 3278 Actuator can be changed from fail-close to fail-open or vice versa after the butterfly valve has been installed. In this case, the side where the rotary actuator is mounted must be changed from flange 2 to 1 or vice versa.

The pistons of the Type AT Actuator (SRP) must be reversed to change the fail-safe action.

! NOTICE

Refer to the mounting and operating instructions of the rotary actuator used for further details, for example about changing the spring range to achieve other actuator torques.

5 Customer inquiries

Please submit the following details:

- Order number

Specifications on the nameplate:

- Type designation and model number
- Valve size
- Shut-off butterfly valve version
- Pressure of the process medium
- Temperature of the process medium
- Flow rate in m³/h
- Signal pressure range (bench range) of actuator
- Installation drawing

For details about dimensions and weight:

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