

1. Supporting documents

NOTICE

- Read through the installation and operating instructions carefully before installing the product! The installation and operating instructions contain important notices for your personal safety. They must be read and understood by all persons who work with or handle the product during any phase of the product lifetime. The documents listed below are available for download on our website www.zimmer-group.com. Only those documents currently available on the website are valid.
 - Catalogs, drawings, CAD data, performance data
 - Installation and operating instructions
 - Technical data sheets
 - General Terms and Conditions of Business with specifications for the warranty entitlement

2. Safety notices

DANGER

- Various components of the element are constantly under spring tension.
 - Never open the housing!
 - Intervention is not permitted and can lead to serious injuries!
 - Warranty and disclaimer

CAUTION

- Non-compliance may result in severe injuries! Injuries or malfunctions can occur, especially with:
 - Crushing during installation due to an unsecured mounting piece
 - Improperly assembled pneumatic connections
 - Pneumatic supply faults, e.g. due to pressure fluctuations
 - Damaged or loose pneumatic lines
 - Missing or loose mounting screws
 - Removal of the safety cover
 - Failure to switch off the working medium during assembly or repair work on the element
 - Human error
 - Failure to observe the safety and warning notices during installation and commissioning.
 - When opening with the emergency release, make sure to secure the element.

3. Proper use

NOTICE

- The element is only to be used in its original state with its original accessories, with no unauthorized changes and within the scope of its defined parameters for use. Zimmer GmbH shall accept no liability for any damage caused by improper use.

The RBPS element is designed for operation with compressed air only. The element is not suited for operation with any other media. In accordance with EN ISO 13849-1, the RBPS element is a safety related component of control systems. Furthermore, we can confirm that the product has been manufactured using the basic and proven safety principles (EN 13849-2, appendix B.1 and B.2) and thus define the RBPS element as a proven component in accordance with EN 13849-1, chap. 6.2.4, para. b. The element can be used without any control engineering measures in control systems of Category B or 1; for category 2 control systems, a test channel must be provided. For use in higher control categories, the control must be multi-channel, where each channel must implement the safety function separately.

The element may not be used in any round guide other than those approved by the manufacturer.

Without additional protection or control engineering measures, the element may not:

- be installed in facilities that are used for transporting people (e.g. elevators)
- be used in vehicles
- be used underwater or in other liquids
- be used in a corrosive environment (e.g. in connection with acids)
- come in contact with abrasive media (e.g. grinding dust)
- be used in a vacuum
- come in direct contact with food
- be used in areas with a potentially explosive atmosphere

For questions on the use of the RBPS series element, please contact Zimmer Customer Service.

4. Personnel qualification

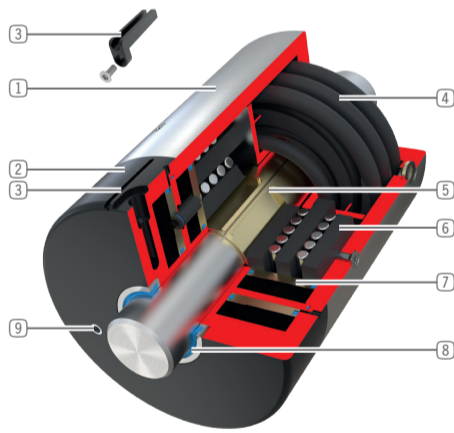
Installation, commissioning and maintenance may only be performed by qualified personnel. These personnel must have read and understood the installation and operating instructions in full.

5. Product description

The pneumatically operated RBPS series is a safety component. It is designed for clamping and braking on round guides or piston rods, which must have a surface hardness of at least 54 HRC. The function is based on the principle of wedge-type gear with a spring accumulator for depressurized clamping and braking. The special feature is that there are pistons connected in series, which counteract the spring accumulator during opening. The spring accumulator enables high holding forces. The integrated quick exhaust valves ensure short response times. To rule out interferences caused by abrasion (chips between the contact surface and round guide), the elements are equipped with a wiper. For special applications, the RBPS element can also be operated in a clean environment without wipers.

⇒ Increased displacement resistance when using wipers.

1	Housing
2	Cover
3	Integrated slot (from version "A" onwards) <ul style="list-style-type: none"> Mounting and positioning of a magnetic field sensor (optional). Up to RBPS1000-A, only possible with optional sensor strip 103151 (accessory).
4	Spring energy accumulator
5	Collet chuck for clamping and braking
6	Wedge-type gear
7	Pneumatic piston
8	Wiper
9	Emergency release <ul style="list-style-type: none"> Remove grub screws. Alternately screw in M6x40 mm threaded rods/screws gradually until the element releases.



6. Connections

NOTICE

- The RBPS series is exclusively operated as a spring accumulator element. The RBPS element has an air connection A. This air connection is used to open the element. Unused air connections must be closed.

7. Installation

WARNING

- Risk of injury in case of unexpected movement of the machine or system into which the element is to be installed.
 - Switch off the power supply to the machine before all work.
 - Secure the machine against being switched on unintentionally.
 - Check the machine for any residual energy.

CAUTION

- If the mounting screws are tightened when the element is not clamped, the element may shift and consequently be unable to apply the optimal clamping force! Furthermore, the guide rail could become damaged.

7.1 General installation information

The element must be mounted on a suitable mounting surface in accordance with the flatness specifications.

The element can be mounted on the mounting piece from above using the threads.

- Make sure the mounting piece is sufficiently rigid and flat.
- Screw-in depth $\geq 0.9 \times \varnothing$
- The mounting screws are not included in the scope of delivery.
- Strength class of the mounting screws ≥ 8.8 (DIN EN IOS 4762)
- Observe the tightening torques of the mounting screws (www.zimmer-group.com/en/it-faq)

⇒ Zimmer GmbH recommends verifying the permitted load-carrying capacity of the required screw connections in accordance with VDI 2230.

- The exact mounting positions can be found on the technical data sheet on our website.

Recommendation of a piston rod (standard piston rod)

Tolerance	f8/g8/h7
Roundness	1/2 dimensional tolerance
Surface	Ra 0.2 - 3.2 µm
Material	Stretching limit min. 400 N/mm ²
Hardness	Min. 54 HRC with min. hardening depth 0.5 mm or hard chrome-plated 20 µm 800 HV (e.g. C45)

7.2 Installing the element

The following work steps must be observed during installation:

- Measure the round guide or piston rod with a suitable measuring tool.
- Remove sealing plugs from the pneumatic connection.
- Connect the pneumatic connection to connection A.
- Connect the pneumatic system; release the element by applying pressure.
- Remove the transport lock from the element.
- Push the element past the end of the round guide or piston rod.
- Manually screw the mounting screws into the threaded holes.
- The element becomes centered by going through multiple cycles (min. 10x opening and closing cycles within 10 seconds).
- Switch the element into a depressurized state, thereby clamping it.
- Tighten the mounting screws.

7.3 Checking operational readiness

After the element has been properly installed, check whether it is ready to be operated according to the following characteristics:

- Look and listen for leaks in the pneumatic connections.
- Look and listen for leaks in the pressurized element.
- As part of the test routine, check for the ability to move easily on the round guide or piston rod when the element is open and in the clamping or braking process.
 - Testing on vertical axes: Test force + weight of vertical axis = nominal force of the element
 - Testing on horizontal axes: Test force = nominal force of the elements
- Function check of all magnetic field sensors that are used.
- Check all mounting screws for the specified tightening torque.

7.4 Removal/transport lock

CAUTION

- The transport lock can only be removed once the air connection has been pressurized with the minimum air pressure. The element should only be depressurized when the piston rod or the transport lock is between the contact surfaces!

8. Technical data

The element has a product life cycle of (B₁₀₀ value) of 5,000,000 cycles.

The B₁₀₀ value is determined in accordance with ISO 19973-1 (dangerous failures with regard to the safety of machinery).

INFORMATION

- For technical data, please visit our website (www.zimmer-group.com/en/it-faq). This data varies within the series, depending on the specific design. Zimmer Customer Service is available to provide you with assistance if you have any further questions.

9. Maintenance

NOTICE

- A water-based, low-alkaline cleaner with anti-corrosion properties can be used for cleaning the round guide. A multi-function oil can be applied as corrosion protection during longer idle mode. It is essential to prevent these agents from penetrating the element, especially for vertical installation. The round guide is to be completely cleaned of grease before restarting the machine.

The element is maintenance-free up to the number of cycles listed in Section 8 under the following conditions:

- Use compressed air in accordance with DIN ISO 8573-1 [4:4:4].
- The air filter must be kept clean and must be cleaned if necessary. The element must not be operated without this filter.
- The round guide or piston rod must be clean and free of greasy films.
- Even though the element is, as mentioned, maintenance-free, perform a regular visual inspection to check for corrosion, damage and contamination.
- The filters of the quick exhaust valve and the ventilation couplings may not be clogged by contamination.
- A visual inspection of the wipers is to be completed annually.
- Once the number of cycles listed in Section 8 has been reached, the element is to be completely replaced.

Spare parts: The round guide and piston rod tolerances for a possible replacement must be observed in accordance with the assembly instructions.

10. Troubleshooting

INFORMATION

- For a precise and detailed overview of possible faults and corrective measures, please visit our website at www.zimmer-group.com/en/it-faq. Zimmer Customer Service is available to provide you with assistance if you have any further questions.

11. Transportation/storage/preservation

- Transport and storage of the element must take place only using the original packaging or similar packaging. For other type of storage or transport, apply corrosion protection.
- If the element is already mounted on the superordinate machine unit, all power and installation connections must be checked prior to commissioning.
- Clean all components. There must be no soiling left on the components.
- Apply corrosion protection in the correct manner.
- Close pneumatic connections using suitable covers.

12. Decommissioning and disposal

INFORMATION

- When the element reaches the end of its operational phase, the element can be completely disassembled and properly disposed of according to material groups. Completely disconnect the element from the power supply. When disposing of it, observe the locally applicable environmental provisions and codes and regulations for disposal.

13. Declaration of Conformity

In terms of the EU Machinery Directive 2006/42/EC (Annex II 1 A)

Name and address of the manufacturer:

Zimmer GmbH • Im Salmenkopf 5 • 77866 Rheinau, Germany • +49 7844 9138 0 • +49 7844 9138 80 • www.zimmer-group.com

We hereby declare that the following, identically constructed safety components

Product designation: Clamping and braking element for round guides with spring accumulator
Type designation: RBPS series

conform to the requirements of the 2006/42/EC directive in their design and the version we put on the market. The following harmonized standards have been used: (The manufacturer has a full list of the applied standards.)
DIN EN ISO 12100:2011-03 Safety of machinery – General principles – Risk assessment and risk reduction
DIN EN ISO 13849-1 / 2 Safety of machinery – Safety-related parts of control systems
DIN EN ISO 4414 Safety-related requirements for pneumatic systems and their components

A full list of applied standards can be obtained from the manufacturer.

Authorized representative for compilation of relevant technical documents

Michael Hemler	See manufacturer's address	Rheinau, Germany, 2020-11-20	Martin Zimmer, Managing Director
First name, last name	Address	Place and date of issuance	Legally binding signature