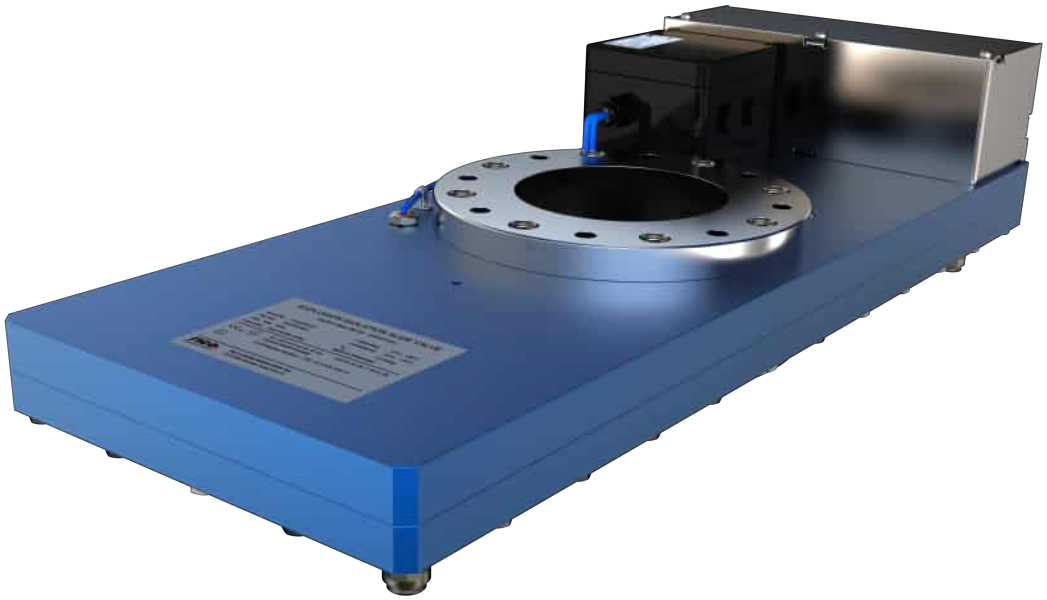
Operating instructions

Explosion protection slide valve
REDEX® Slide



The original operating instructions were written in German

rico CERTIFIED SAFETY

Index: g, 30/06/2023

Read the instructions prior to performing any task!

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1 General information

1.1 Manufacturer

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1.2 Purpose of the operating instructions

The purpose of the operating instructions is to provide the personnel employed by the operator with the necessary knowledge to safely handle the product. Safe handling includes (in addition to operation) all the phases of the product's life cycle described in these operating instructions, such as commissioning, set-up, use, cleaning, maintenance, decommissioning, transport, disposal etc.

1.3 Target group

The target group for these operating instructions are the operator and the certified service personnel.

Assembly, operation, maintenance and repair of the product may only be carried out by certified, specialist personnel.

Specialist personnel can only be certified by RICO Sicherheitstechnik AG or service partners authorised by RICO Sicherheitstechnik AG and certification must be renewed every two years.

1.4 Scope of application and use of the operating instructions

These operating instructions form an integral part of the product. Knowledge of the information contained therein is indispensable for safe and problem-free handling. The manufacturer waives any liability for damage to materials or injury to persons resulting from a lack of knowledge of, or non-adherence to, the operating instructions.

The operator is responsible for ensuring that it and all persons authorised for the activity in question on the product have read and understood the operating instructions in their entirety before commissioning.

Any questions or unclear points should be raised with the manufacturer or your sales representative.

1.5 Warranty and guarantee conditions

The product is designed according to state-of-the-art knowledge, constructed from high-quality materials and carefully checked and tested in the manufacturer's plant before delivery. However, should you identify any faults or damage during commissioning, operation, cleaning, maintenance, decommissioning or storage, please inform the manufacturer of these in writing immediately. The manufacturer will provide a replacement for the faulty or defective parts in the delivered equipment as part of the General Terms and Conditions of Sale and Delivery.

No warranty applies to damage resulting from:

- A lack of knowledge of, or non-adherence to, the operating instructions
- Use contrary to the intended use
- Inadequate maintenance
- Use of unsuitable replacement parts (only original replacement parts may be used)
- Use of unsuitable accessories
- Work performed by uncertified personnel

For warranty claims to be accepted, the damaged parts must be returned to the manufacturer together with a description of the defect and the serial number.

Material covered by the warranty will be replaced as quickly as possible ex works.

1.6 Storage

The operator is always responsible for the storage location of the operating instructions. The operating instructions must be available at all times to all persons employed by the operator in case they are required.

The operating instructions must be stored carefully for the entire 15 years of the product's service life, and if required, updated with subsequent information from the manufacturer.

If the product is sold or decommissioned, the operating instructions must be handed over to the new operator or disposal company.

Lost operating instructions, drawings, parts lists and the technical data sheets can be re-ordered from the manufacturer by stating the fabrication number.

1.7 Copyright notice

1.8 Typographical conventions

Bold mark-up

Important information is marked in **bold** in order to draw the target group's attention.

1.9 Definition of terms

The explosion protection components, VENTEX®, explosion protection slide valve RSV, REDEX® Slide or REDEX® Flap are referred to as "product", "valve", "slide valve" or "flap" in these operating instructions.

2 General safety information

Handling-related safety information *provides warnings of risks and risk points associated with handling and are visible immediately* ***before the step in question****.*

2.1 Manufacturer’s area of responsibility

The manufacturer is responsible for the flawless delivery of the product from a technical safety perspective, including the operating instructions.

2.2 Operator’s area of responsibility

Assembly, operation, maintenance and repair of the product may only be carried out by certified, specialist personnel.

The operator and the certified specialist personnel must have fully read and understood the operating instructions.

2.2.1 Training, expertise

The operator ensures that all activities carried out on the product are performed by certified specialist personnel only.

2.2.2 Protective equipment

The operator ensures the provision of personal protective equipment appropriate to the situation for its employees (e.g. gloves, respiratory protection, hearing protection etc.).

2.2.3 Duty of maintenance and due diligence

The operator ensures that the product is maintained and operated in a technically perfect condition. The operator shall carry out the stipulated checks and the required maintenance work and shall authorise/organise all service and repair work, which can only be carried out by a certified specialist.

Maintenance documentation

All activities carried out on the REDEX® Slide should be documented or entered in the RICO Service app at www.service.rico.ch for traceability purposes.

2.3 Intended use

Due to the risk of injury, the REDEX® Slide must not be fitted to the end of a pipe. The pipe length on both sides of the flange connection must be at least 850 mm (cf. ISO 13587). Stability PN1. The intended use must be ensured. The manufacturer provides no guarantee in the event of unsuitable, incorrect or improper use, faulty assembly or repairs, failure to comply with quality assurance measures, failure to observe the instructions for use or maintenance on the part of the customer or third parties, or natural wear and tear, unsuitable operating materials, replacement materials, replacement parts from third parties, defective media connections, or chemical, electrochemical, electrical or thermal influences, unless the manufacturer is responsible for the above. The buyer must always check that the sealing material is compatible with the medium, the application and the ambient temperature. The RICO order confirmation is authoritative in the event of doubt.

The REDEX® Slide is designed and built for use in pipelines through which **organic dusts** flow and in which a vacuum is present.

The REDEX® Slide can only be used in combination with FEP-O-seals for applications with an excess pressure of ≤ **0.5 bar**.

Other applications are only permissible after clarification and with the express approval of the manufacturer.

2.4 Types of safety information

DANGER!

Designates an **imminent danger**. If this danger is not avoided, **it will result in death or serious, irreversible injury**.

WARNING!

Designates a **potentially dangerous situation**. If this dangerous situation is not avoided, **it may result in death or serious, irreversible injury**.

CAUTION!
Designates a **potentially dangerous situation**. If this dangerous situation is not avoided, **it may result in minor or minimal, irreversible injury**.

*Designates a **potentially harmful situation**. If this potentially harmful situation is not avoided, **the product or something in its vicinity may be damaged**.*

2.4.1 Symbols used

Fig. 1: Warning symbol, suspended load

Fig. 2: Warning symbol, explosive atmosphere

Fig. 3: Warning symbol, hazardous substances

Fig. 4: Warning symbol, hot surface

Fig. 5: Warning symbol, hand injuries

Fig. 6: Mandatory symbol, wear foot protection

Fig. 7: Mandatory symbol, wear ear protection

2.4.2 User information

Information that refers to technical and commercial requirements. Non-adherence can lead to faults and production down-time.

2.5 Special dangers

Fig. 8: Warning symbol, explosive atmosphere

DANGER!

Insufficient functioning of the product due to improper assembly, maintenance or inspection. Danger to life due to spreading substances that are explosive and/or harmful to health!

Fig. 9: Warning symbol, hazardous substances

CAUTION!

Preparation for assembly, functionality test, inspections and/or maintenance

- A **decontamination declaration** must be completed prior to inspection and/or maintenance work and must confirm that the product has been cleaned and no longer contains any residual substances that are harmful to health.
- If the product comes into contact with substances that are harmful to health, these substance must be entered in the decontamination declaration.
- The decontamination declaration may only be filled out and signed by the operator's authorised specialists.
- The decontamination declaration must be sent to RICO before the start of maintenance and/or inspection work (if activities are performed by RICO).
- Before carrying out any work on the product, it must be ensured that the **gas generator is in the secured position**.
- Before carrying out any work on the product, it must be ensured that the product has cooled down.

Fig. 10: Warning symbol, hand injuries

Fig. 11: Warning symbol, hot surface

2.6 Combination with other products

The REDEX® Slide may only be combined with other products if the following points are considered and complied with. ***If this is not the case, the function of the product cannot be ensured.***

- *This applies to the combination with the following RICO products:*
  - *Explosion protection slide valve* ***RSV***
  - *Explosion protection valve* ***VENTEX® ESI-P***
- *All gas generators which are connected in parallel or in series, or which can be triggered by the same controller,* ***must have*** *the* ***same ignition current****.*

If this is the case, we request that you contact us at *info@rico.ch* so that we can advise you in this respect.

3 REDEX® Slide product description

The REDEX® Slide is used to isolate a pipe section in the event of an explosion.

*According to Machinery Directive 2006/42/EC, the REDEX® Slide is an **incomplete machine**.*

3.1 Functional principle

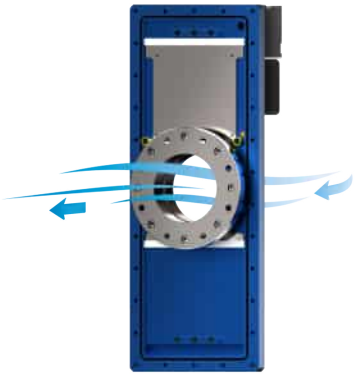


Fig. 12: REDEX® Slide flow

During normal operation, the medium flows through a pipe and through the REDEX® Slide when the REDEX® Slide is in the “open” position.

One or more sensors are located on the pipe or the equipment to be protected, in the direction of the explosion upstream of the REDEX® Slide. These detect an explosion should one occur. The sensors are connected to a controller, which evaluates the data from the sensors. The REDEX® Slide is also connected to the controller. These components are not part of the slide valve, and instead belong to the complete protection system. These components will therefore not be discussed in further detail here.

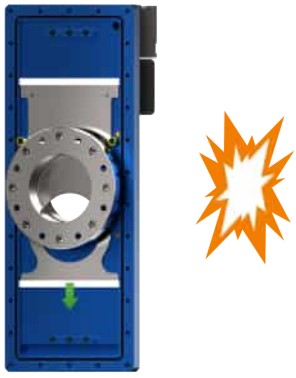
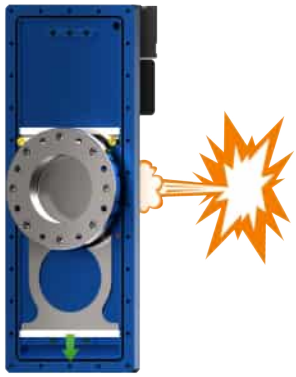


Fig. 13: REDEX® Slide explosion

If the controller reports an explosion to the REDEX® Slide, a gas generator located in the slide valve will be ignited. The ignition of the gas generator generates a pressure inside the slide valve, which immediately puts the slide blade into a rapid movement.



As a result, the REDEX® Slide or the passage of the pipe is closed and the explosion is prevented from spreading.

Fig. 14: REDEX® Slide closed

3.2 Pressure shock-resistant design

NOTICE!

The REDEX® Slide has a **pressure shock-resistant design**. This means that the REDEX® Slide always has to be inspected after an explosion and any damaged parts or the entire slide valve must be replaced. If there is no inspection by a trained service technician or RICO Sicherheitstechnik AG, there is a risk that the slide valve will no longer be able to perform its function.

3.3 ATEX approval

Fig. 15: Ex mark

- Test number DN80-DN150: **FSA 14 ATEX 1647 X**
- Test number DN50-DN65: **FSA 19 ATEX 1698 X**
- Equipment group: II
- Equipment category: 1D
- Protection system: D
- Zone inside: 20, 21, 22
- Zone outside: Depending on the add-on parts, e.g. switches

The relevant marking is specified by FSA GmbH, Dynamostr. 7-11, 68165 Mannheim, Germany.

3.4 Explosion pressure and process temperature

- Explosion pressure: See installation guideline BT0105DE/BT0105GB
- Excess pressure function: See installation guideline BT0105DE/BT0105GB

- Maximum process temperature: See installation guideline BT0105DE/BT0105GB
- REDEX® Slide closing times: See technical data sheet BD0111DE/BD0111GB

3.5 Media

NOTICE!
The REDEX® Slide may only be operated using the media described in the **installation guideline BT0105DE** for German or **BT0105GB** for English. On no account is the slide valve to be used with fluids. If you do not have the applicable installation guideline anymore, please contact us at *info@rico.ch*.

3.6 Technical data

3.6.1 Technical data sheet & installation guideline

The scope of delivery for every REDEX® Slide includes an appropriate **technical data sheet**, which contains supplementary technical data.

See **installation guideline BT0105DE** for German, or **BT0105GB** for English. If these are not available, please contact us at *info@rico.ch*.

3.6.2 Assembly diagram & parts list

The scope of delivery for every REDEX® Slide includes an assembly drawing (customer drawing pdf) and a parts list showing and describing the technical structure of the slide valve.

3.6.3 Name plate

A name plate is affixed to every REDEX® Slide. This contains the following information:

- Manufacturer
- Classification
- Serial number
- Year of manufacture
- Part number
- Net weight indication
- Max. operating temperature
- Temperature-dependent pressure load

- Permissible ambient temperatures
- ATEX zone inside/ATEX zone outside
- Standard marking

Additionally, the serial number is marked on the housing of the slide valve.

3.6.4 Gas generator

DANGER!

Pay attention to the regulations when working with the gas generator.

– **VDA recommendation**
  11-007 safety data sheet

3.6.5 Switches

See separate description from the switch manufacturer.

4 REDEX® Slide assembly

4.1 Exploded view

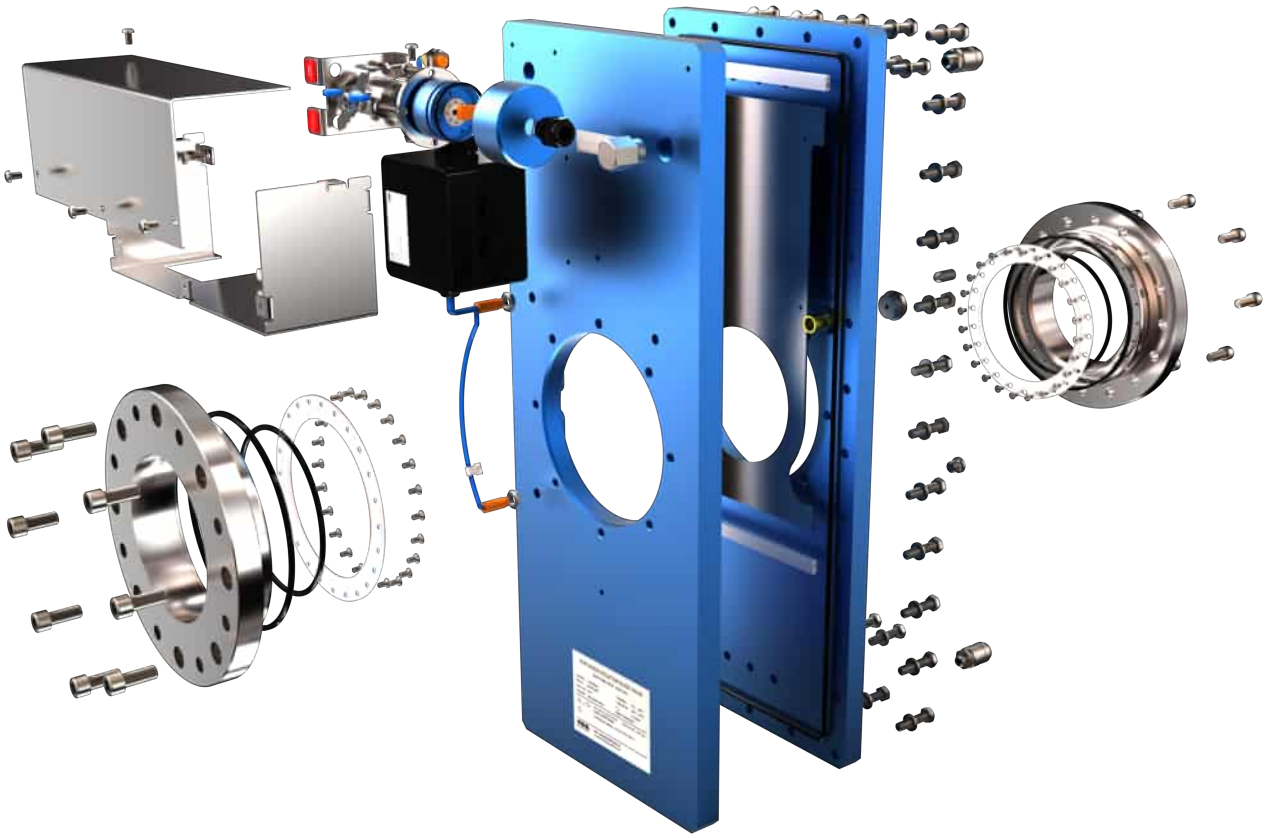


Fig. 16: REDEX® Slide exploded view

4.2 Installation information

Independent support for REDEX® Slide

To prevent stresses on the slide blade during the closing process, the REDEX® Slide must be supported independently of the pipe. The additional support must be able to bear twice the weight of the slide valve. See also Fig. 17.

NOTICE!

Possible considerations include, for example:

- **Alignment errors:** The pipelines must be aligned flush and have no offset. One possible measure to counteract this would be to integrate a compensator into the pipeline.
- **Length tolerances:** The pipeline dimensions must be chosen so that no tension is exerted on the slide valve.
- **Thermal expansion:** Expansion due to increasing temperatures during the process must be taken into account in the design. One possible measure to counteract this would be a flexible design for the mounting in the direction of the pipeline (flush with the pipeline).

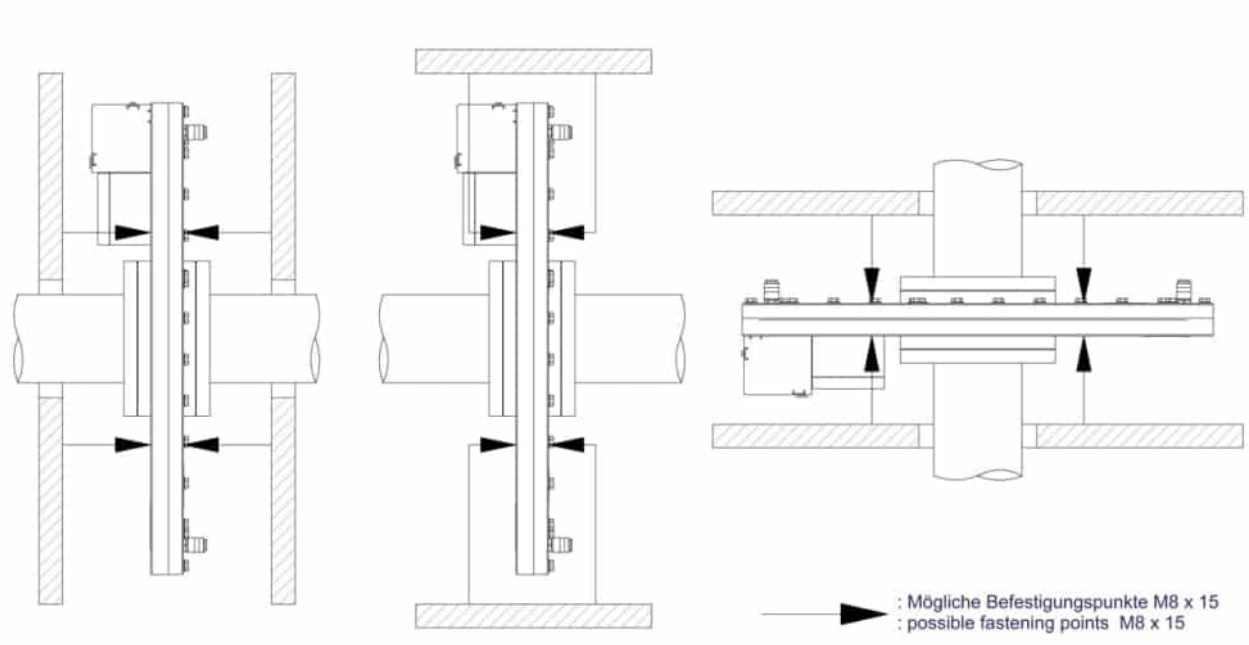


Fig. 17: REDEX Slide support

Fastening and lifting points

Use the intended fastening thread in the housing. Refer to the points marked in blue in Fig. 18 and Fig. 19. Also observe the BT0105 installation guideline.

There are four fastening threads available; note that the slide valve must only be fastened on one half of the housing and thus only to two of the threads, provided the support bears twice the weight of the slide valve. Note that the four threads can also be used as lifting points.

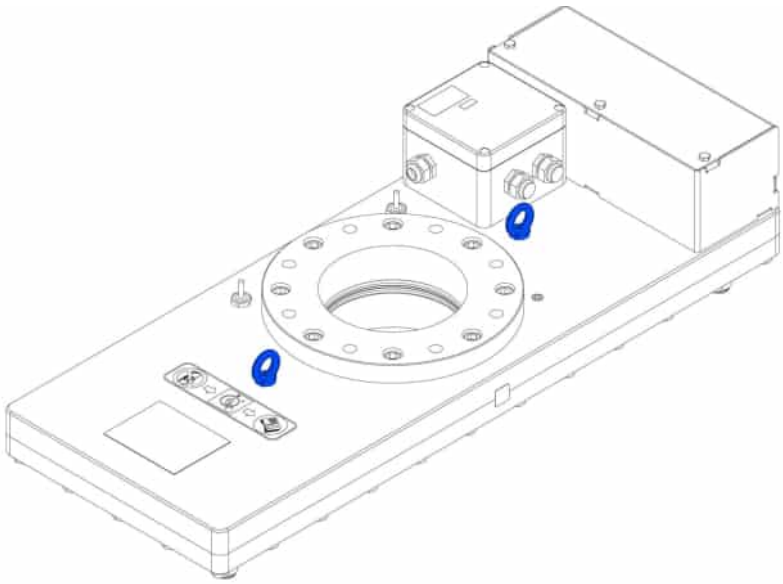


Fig. 18: Fastening and lifting points

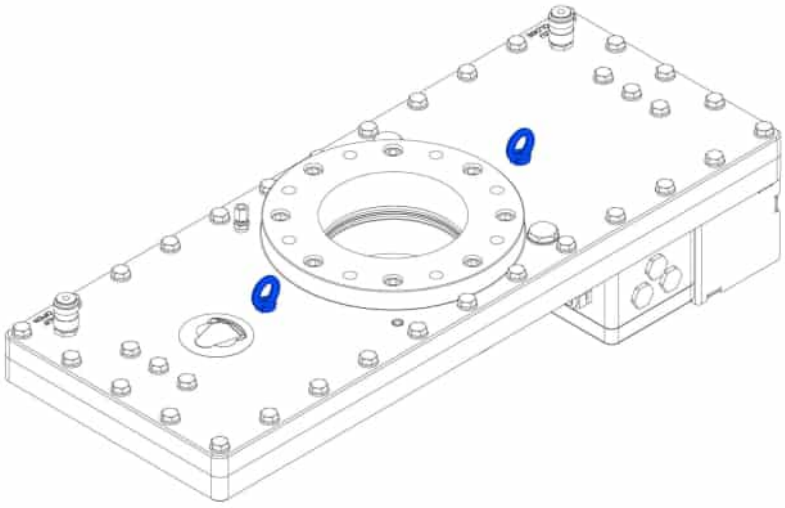


Fig. 19: Fastening and lifting points

Independent support of the pipelines

In addition, RICO recommends independently supporting the pipeline in addition to the slide valve (e.g. for maintenance work). For an example, see Fig. 20. The independent support should be as close as possible to the slide valve. In all cases, prevent bending of the pipelines and the exertion of forces on the slide valve housing.

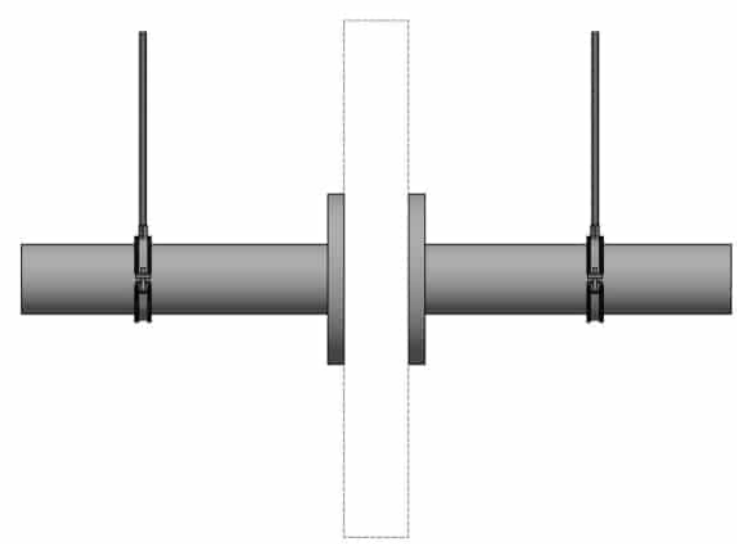


Fig. 20: Possible support of the pipeline

Assembly

During assembly, ensure good access and easy disassembly options for inspections. To ensure access to the slide valve during maintenance work and to simplify maintenance work, sufficient clearance must be provided. We recommend including an inspection hatch in the pipeline upstream and downstream of the slide valve or an intermediate pipe section that can be removed easily.

Due to the risk of injury, the explosion protection slide valve must not be fitted to the end of a pipe. The pipe length on both sides of the flange connection must be at least 850 mm (cf. ISO 13587). Strength class PN1.

NOTICE!
The REDEX® Slide must not be insulated or heated as this could cause an increase of temperature in the gas generator. The maximum limit for the gas generator is 60 °C. The service life of the gas generator is reduced significantly by higher temperatures due to the accelerated decomposition of the propellant.

4.3 Direction of explosion

The REDEX® Slide has a dual action, i.e. it can isolate explosions from both sides if the sensors are designed accordingly. There is therefore no need to pay attention to the direction of explosion.

4.4 Installation position

The REDEX® Slide is designed so that it can be installed in any position. The closing times or installation distances specified by RICO Sicherheitstechnik AG have been tested in the worst-case scenario.

4.5 Tightening torques

NOTICE!
Use a torque wrench for assembly and pay attention to the permitted tightening torques of the screw connections.

Tab. 1: Torque for REDEX® Slide

Screw	Torque [Nm]
M6	8 Nm
M10	38 Nm
M12	63 Nm

Aids required

1. Loctite 577
2. Loctite 290
3. Klüber Wolfracoat C or similar
4. Leaking spray

Tools required

1. Face spanner (included in the delivery)
2. Pliers
3. Commercially available tools

4.6 Electrical connections

Earth and **wire** the junction box **according to the electric circuit diagram**, which is included in the scope of delivery.

Then tighten the cable glands to produce a tight termination. Make sure that the cover of the connecting socket sits correctly.

Fig. 21: Earthing

4.7 Earthing

To ensure equipotential bonding of the mounted pipelines, the earth connection on the REDEX® Slide housing must be chosen. See also Fig. 22.

- 1x earthing screw – hexagon screw M8x16
- 2x lock washer

Check if the slide blade is earthed by measuring the resistance from the earthing terminal to the slide blade **(≤ 10^6 ohm)**.

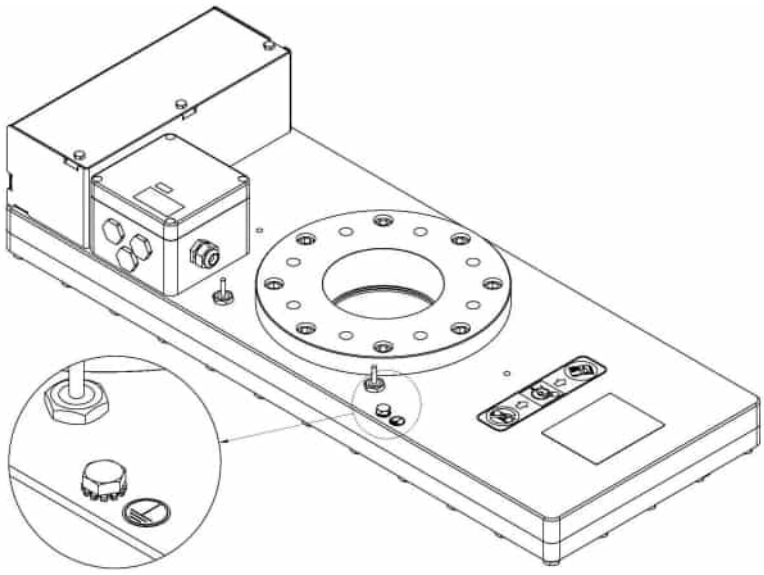


Fig. 22: Earth connection

4.8 Compressed air

*For pneumatic actuation, only use compressed air that is **dry and free from water and oil** as per DIN/ISO 8573-1 Class 1.*

4.9 Welding work

NOTICE!

When welding the pipe, the plug-in connector must be removed to prevent ignition of the gas generators.

– Set the REDEX® Slide to the “secured” position if it is not already in this position.
– Unplug the ignition cable.
– Remove the plug-in connector for the gas generator by loosening the safeguard and pulling out the plug-in connector.

IMPORTANT

The pipe must be earthed.

5 Commissioning the REDEX® Slide

5.1 Commissioning

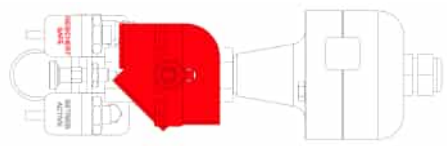


Fig. 23: Gas generator, “secured” position

1. Set the REDEX® Slide to the “secured” position if it is not already in this position.
   - Remove the cover of the cladding of the gas generator holder and put it aside with the screws.
   - Tighten the locking bolt, hold it firmly and turn the ball valve simultaneously so that the cam switch sends a signal for the “secured” position via the switch.
   - ⇨ The REDEX® Slide is now secured and work can be carried out on it.

   All REDEX® Slides are delivered in the “secured” position for safety reasons.

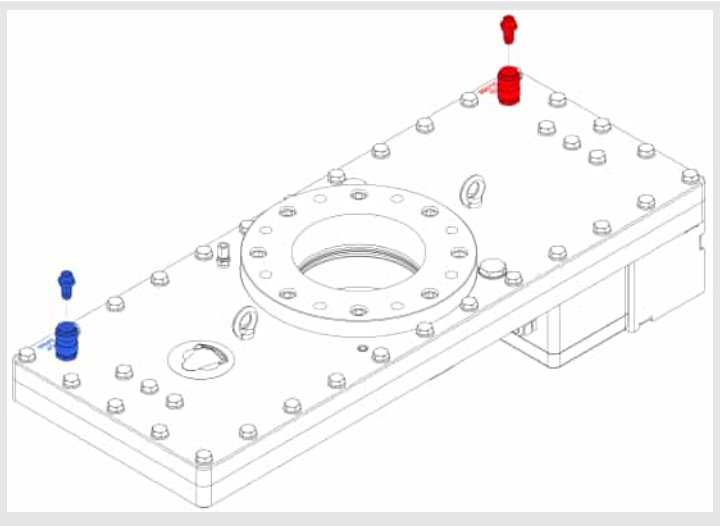
2. Use the plug nipples included in the delivery:
   - Remove both plug nipples located on the gas generator holder.
3. Wire the slide valve via the junction box to the controller according to the electric diagram provided.
4. Remove the electric bridge according to the electric diagram.
5. Perform the functionality test according to the “Functionality test” guide. ↬ *Chapter 5.2 ‘Functionality test’ on page 25*
6. The REDEX® Slide is now ready for use.

5.2 Functionality test

1. Set the REDEX® Slide to the “secured” position if it is not already in this position.
   - Remove the cover of the cladding of the gas generator holder and put it aside with the screws.
   - Tighten the locking bolt, hold it firmly and turn the ball valve simultaneously so that the cam switch sends a signal for the “secured” position via the switch.
     If not, check the switches, cables and connections for damage and replace them if need be.
   - ⇨ The REDEX® Slide is now secured and work can be carried out on it.

2. Pneumatically actuate the slide valve.

The following statement describes the pneumatic actuation of a slide valve in its basic design:



- Connect the plug nipple to the self-locking coupling where “ZU/CLOSE” is engraved on the housing. Use a pressure controller here, if available. Please refer to the following information section for details of the dwell time in the end positions.
- Check whether the slide blade can be moved with 6 bar or if it can be moved to the closed position. If the slide valve cannot be closed with 6 bar, it must be inspected.
- In the closed position, check whether your controller is receiving a signal.

  If not, check the switches, cables and connections for damage and replace them if need be.
- Connect the plug nipple to the self-locking coupling where “AUF/OPEN” is engraved on the housing. Please refer to the information section below for details of the dwell time in the end positions. Then open the REDEX® Slide again.
- In the open position, check whether your controller is receiving a signal.

  If not, check the switches, cables and connections for damage and replace them if need be.

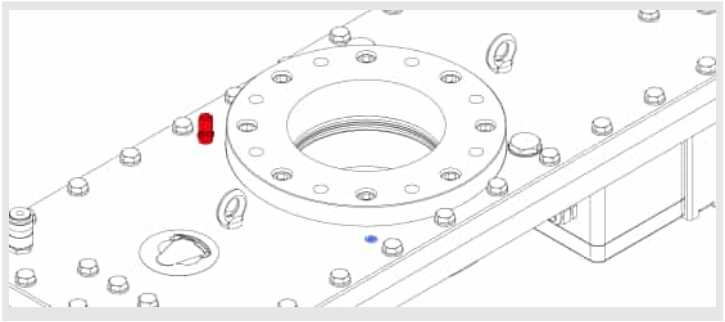
Activation pressure

*The pneumatic pressure for activating the REDEX® Slide must be **6 bar**. The pneumatic closing or opening time must be ≤ 6 s and should be measured using the controller.*

Dwell time in position “AUF/OPEN” and “ZU/CLOSE”

*In the open and close position, please observe a dwell time of at least **1 minute**.*

3. Checking the non-return valve for a water leak



After pneumatic activation, check whether water is leaking from the non-return valve (blue).

If so, the slide valve and compressed air supply must be checked immediately.

4. Checking the earthing *Chapter 4.7 ‘Earthing’ on page 23*

5. Check the prescribed screw tightening torques *Chapter 4.5 ‘Tightening torques’ on page 22*.

6. Put the REDEX® Slide or ball valve in the “active” position and check if the switch is sending a signal for the “active” position.

   If not, check the switches, cables and connections for damage and replace them if need be.

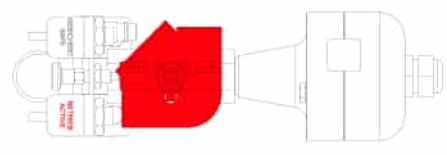


Fig. 24: Gas generator, active position

7. Upon completion of the functionality test, the plug nipples need to be removed again for safety reasons.

8. Assemble all the covers removed earlier using the screws provided for this purpose.

   ⇨ **If the functionality test is passed successfully, the product can be put into operation.**

Sensors

The use of sensors in an outdoor explosion zone is only permitted during intrinsically safe operation.

Gas-tight test for the REDEX® Slide

Blind flanges must also be installed to perform the gas-tight test of the housing in the REDEX® Slide with vacuum function. These are not included in the scope of delivery.

Functionality test

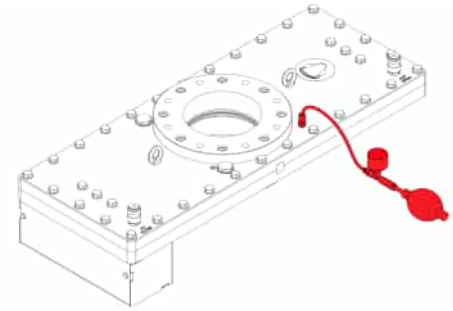


Fig. 25: REDEX® Slide with hand pump (red)

Gas-tight test for the REDEX® Slide with FEP-O-seals

The hand pump included in the delivery can be used for the gas-tight test of the housing in the REDEX® Slide with excess pressure function.

6 REDEX® Slide maintenance

6.1 Maintenance

The maintenance intervals are dependent on the operating conditions of the REDEX® Slide.

We recommend that you do not actuate the REDEX® Slide pneumatically outside the maintenance intervals, in order to prevent the ingress of dust inside the slide valve. However, please ensure that the slide valve ***is pneumatically actuated at least once a year****.*

Maintenance intervals to be observed

Interval	Maintenance work
a) 3 to 5 days after commissioning	Functionality test
b) 3 months	Functionality test, visual and wear monitoring
c) Annually or depending on process (mandatory)	Functionality test, visual and wear monitoring
c) Every 8 years (mandatory)	The gas generator must be replaced no later than after 8 years (see chapter “Gas generator”).
d) Every 5 years (mandatory)	All seals must be replaced no later than after 5 years.

Replacing the slide blade

After 10 activations by gas generators, the entire slide blade and the spring-loaded ball bearing must be replaced.

Activation in secured position

In the event of possible activation in the “secured” position, the entire gas generator holder unit must be replaced.

6.1.1 Test process after an explosion/fire

After an explosion or fire, the device must be inspected in accordance with the BB0106 instruction manual and the following points must be checked:

Check of the housing

- Check for deformation of the housing on the outside (across the entire length of the housing)
  - Evenness ≤ 0.5 mm (DN50-DN150)

Check of the flange

- Check for deformation of the flange
  - The axial true running of the flange, from the bearing face to the sealing face, must be ≤ 0.05 mm.

The following parts must be replaced

- Entire slide blade
- Screw connections
- All seals
- Springs
- Ball bearings
- Non-return valves

Measuring equipment required

- Measuring table
- Dial gauge, 0.01 mm

Tools required

- Feeler gauge from 0.1 mm to 1.0 mm
- Hand pump with pressure gauge
- Set of open-ended wrenches from 10 mm to 27 mm
- Set of Allen keys from 4 mm to 17 mm

6.2 Recurring maintenance

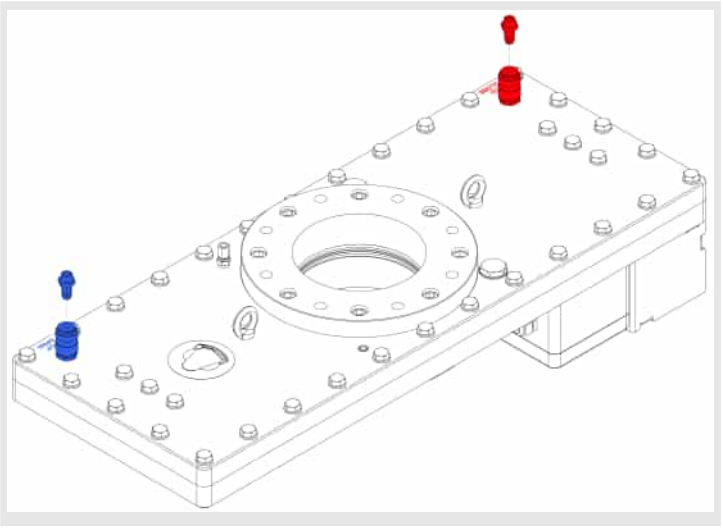
6.2.1 Functionality test

1. Set the REDEX® Slide to the “secured” position if it is not already in this position.
   - Remove the cover of the cladding of the gas generator holder and put it aside with the screws.
   - Tighten the locking bolt, hold it firmly and turn the ball valve simultaneously so that the cam switch sends a signal for the “secured” position via the switch.
     If not, check the switches, cables and connections for damage and replace them if need be.

   ⇨ The REDEX® Slide is now secured and work can be carried out on it.

2. Pneumatically actuate the slide valve.

The following statement describes the pneumatic actuation of a slide valve in its basic design:



- Connect the plug nipple to the self-locking coupling where “ZU/CLOSE” is engraved on the housing. Use a pressure controller here, if available. Please refer to the following information section for details of the dwell time in the end positions.
- Check whether the slide blade can be moved with 6 bar or if it can be moved to the closed position. If the slide valve cannot be closed with 6 bar, it must be inspected.
- In the closed position, check whether your controller is receiving a signal.

  If not, check the switches, cables and connections for damage and replace them if need be.
- Connect the plug nipple to the self-locking coupling where “AUF/OPEN” is engraved on the housing. Please refer to the information section below for details of the dwell time in the end positions. Then open the REDEX® Slide again.
- In the open position, check whether your controller is receiving a signal.

  If not, check the switches, cables and connections for damage and replace them if need be.

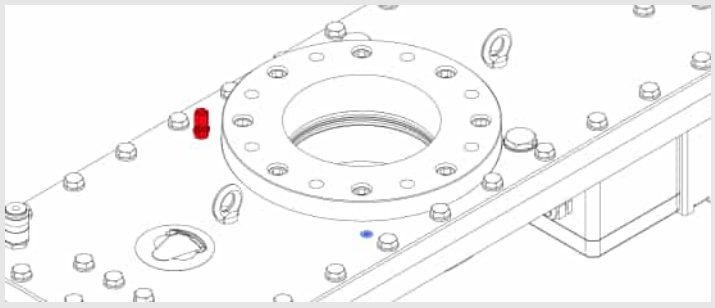
Activation pressure

*The pneumatic pressure for activating the REDEX® Slide must be **6 bar**. The pneumatic closing or opening time must be ≤ 6 s and should be measured using the controller.*

Dwell time in position “AUF/OPEN” and “ZU/CLOSE”

*In the open and close position, please observe a dwell time of at least **1 minute**.*

3. Checking the non-return valve for a water leak



After pneumatic activation, check whether water is leaking from the non-return valve (blue).

If so, the slide valve and compressed air supply must be checked immediately.

4. Checking the earthing *Chapter 4.7 ‘Earthing’ on page 23*

5. Check the prescribed screw tightening torques *Chapter 4.5 ‘Tightening torques’ on page 22*.

6. Put the REDEX® Slide or ball valve in the “active” position and check if the switch is sending a signal for the “active” position.

If not, check the switches, cables and connections for damage and replace them if need be.

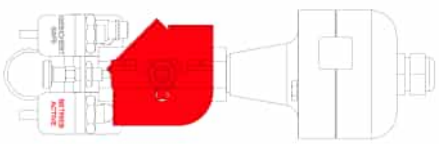


Fig. 26: Gas generator, active position

7. Upon completion of the functionality test, the plug nipples need to be removed again for safety reasons.

8. Assemble all the covers removed earlier using the screws provided for this purpose.

⇨ **If the functionality test is passed successfully, the product can be put into operation.**

Sensors

The use of sensors in an outdoor explosion zone is only permitted during intrinsically safe operation.

Gas-tight test for the REDEX® Slide

Blind flanges must also be installed to perform the gas-tight test of the housing in the REDEX® Slide with vacuum function. These are not included in the scope of delivery.

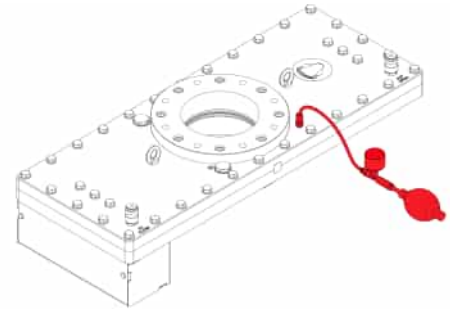


Fig. 27: REDEX® Slide with hand pump (red)

Gas-tight test for the REDEX® Slide with FEP-O-seals

The hand pump included in the delivery can be used for the gas-tight test of the housing in the REDEX® Slide with excess pressure function.

6.2.2 Visual check and wear monitoring

1. Ensure that the REDEX® Slide is in the “secured” position.
2. Check the housing, passage and junction box for corrosion and mechanical damage.
3. Check for impurities and deposits.

   Check whether deposits are present in the area of the lead-through or flanges.

   If so, clean and dry the passage.

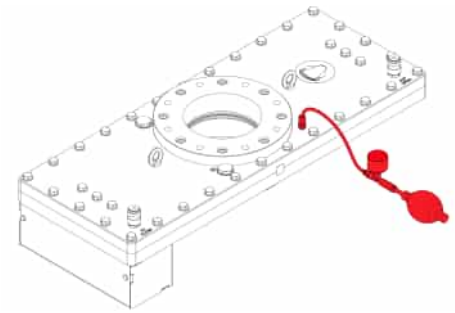


Fig. 28: REDEX® Slide with hand pump (red)

4. Checking the gas tightness of the REDEX® Slide

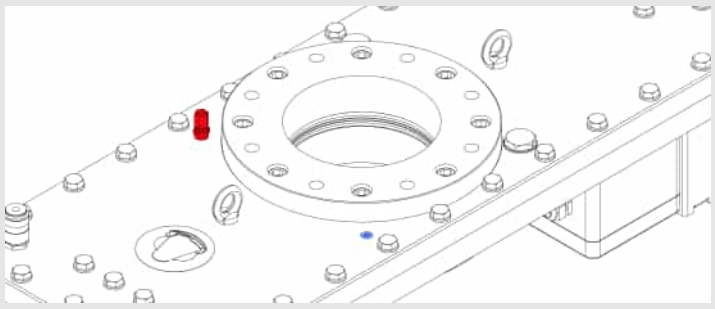
Gas-tight test for the REDEX® Slide

Blind flanges must also be installed to perform the gas-tight test of the housing in the REDEX® Slide with vacuum function. These are not included in the scope of delivery.

Gas-tight test for the REDEX® Slide with FEP-O-seals

The hand pump included in the delivery can be used for the gas-tight test of the housing in the REDEX® Slide with excess pressure function.

- Remove the threaded nipple and fit the hand pump on the plug.
- Create excess pressure of 0.2 bar by pumping.



REDEX® Slide test pressure

Test pressure 0.2 bar

Gas tightness is fulfilled if the drop in pressure is ≤ 0.1 bar/min.

*Gas tightness is **not** fulfilled if the drop in pressure is > 0.1 bar/min.*

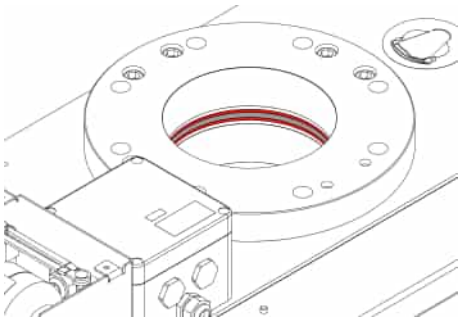


Fig. 29: Slide blade (grey) and active seal (red)

5. Checking the gap dimensions

Check the gap between the slide blade and the active seals.

Gap dimensions

The following gap dimensions are permissible:

- *Good: < 0.05 mm*
- *Bad: ≥ 0.05 mm*

If the maximum permissible gap dimensions are exceeded, the seals must be replaced and the flanges must be adjusted.

No gap dimensions are permitted for the REDEX® Slide with FEP-O-seals. The flange seals must be pressed by screwing the flanges onto the slide blade.

6. Flange seal check

Check the flange seals for visible damage.

If they are damaged, they must be replaced. ↳ *Chapter 7.3 'Replace the active seals' on page 41*. ↳ *Chapter 8.3 'Replacing the FEP-O-seals' on page 52*.

7 REDEX® Slide inspection

WARNING!

Maintenance and inspections in Ex zones

Maintenance and inspections must not be carried out in Ex zones. If this is not possible, appropriate safety measures must be taken and suitable tools must be used.

NOTICE!

Explosive event

The REDEX® Slide must be **inspected after every explosion**, when it shows **signs of wear** or after **5 years**.

Otherwise the function of the slide valve is not ensured.

7.1 Gas generator replacement

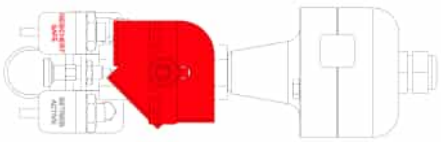


Fig. 30: Gas generator, “secured” position

1. Set the REDEX® Slide to the “secured” position if it is not already in this position.
   - Remove the cover of the cladding of the gas generator holder and put it aside with the screws.
   - Tighten the locking bolt, hold it firmly and turn the ball valve simultaneously so that the cam switch sends a signal for the “secured” position via the switch.
2. Remove the hologram stickers (blue) between the cap and gas generator holder.
3. Remove the hexagon screws holding the cap (red) in place. Remove the cap.

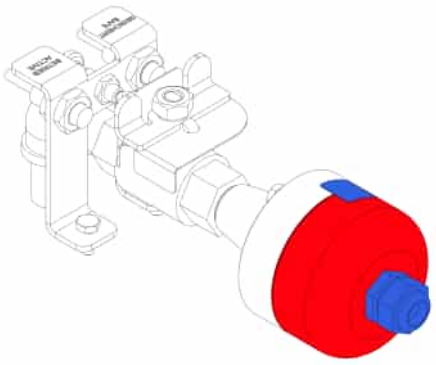
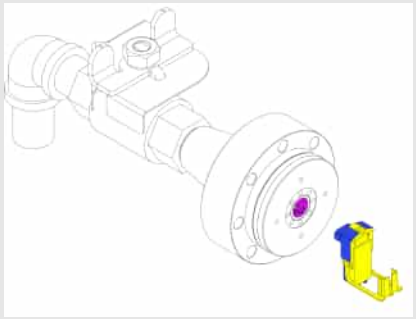


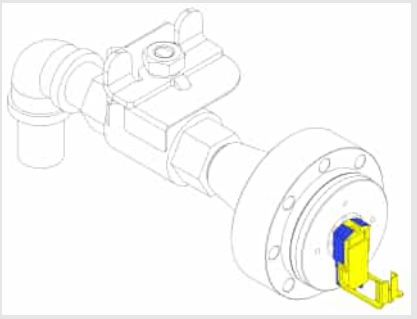
Fig. 31: Cap for gas generator holder

4. Unplug the ignition cable

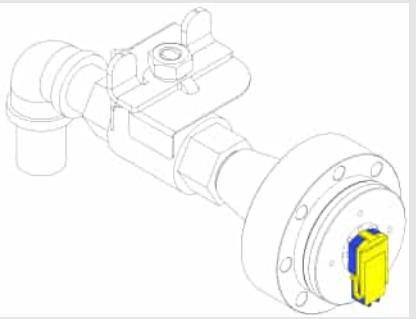
Remove the plug-in connector for the gas generator by loosening the safeguard and pulling out the plug-in connector.



Plug for REDEX® Slide DN50-DN150 unplugged



Plug for REDEX® Slide DN50-DN150 **single**-plugged



Plug for REDEX® Slide DN50-DN150 **double**-plugged

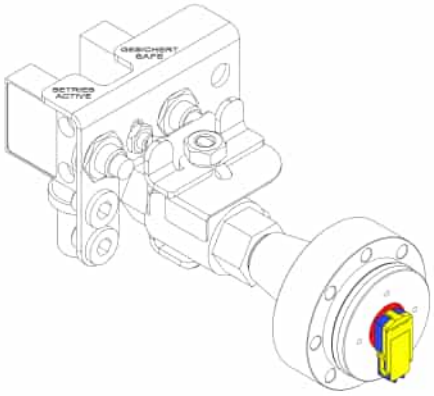


Fig. 32: Spark plug (yellow, blue) and locking screw (red)

5. Remove the gas generator

- Take the face spanner included in the delivery out of its holder.
- Loosen the locking screw from the gas generator holder and remove it.
- Remove the activated gas generator with pliers and dispose of it. *Chapter 9 'REDEX® Slide disposal' on page 58*

6. Remove gas generator residue

- Move the ball valve into the “active” position.
- Apply 6 bar compressed air to the slide valve in this position via the pneumatic connection “ZU/CLOSE” for 15 seconds.

⇨ Any gas generator residues has now been blown out from the gas generator holder and housing.

7. Before continuing with the work, move the ball valve back into the “secured” position.

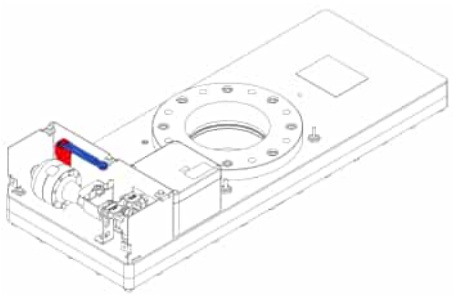
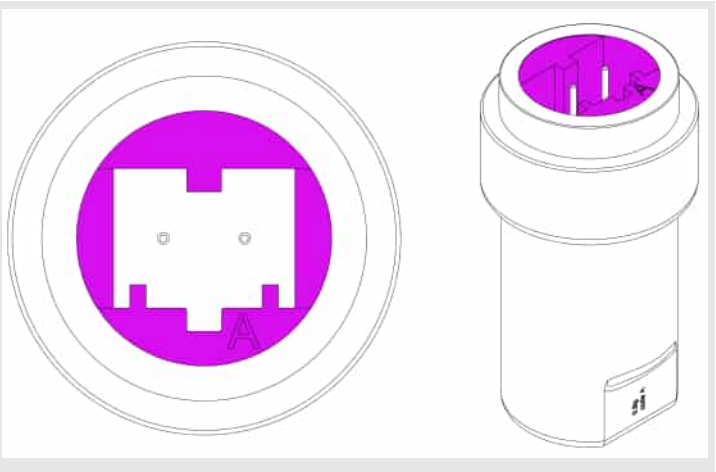


Fig. 33: Spare gas generator holder (red) and face spanner (blue)

8. Insert the gas generator

- Remove the new gas generator from the spare gas generator holder by unscrewing it.
- Remove the new gas generator, the new buffers and the hologram stickers.
- Lightly apply high-temperature grease (e.g. Klüber Wolfracoat C) to the gas generator.
  Insert the new gas generator and re-tighten with the locking screw.
- Plug the ignition cable back in so that it locks in place twice.
- Place the cap of the gas generator holder on it and fix it again with its hexagon screws.
- Stick one of the new hologram stickers on the cap and gas generator holder.
- Screw back the empty spare gas generator holder and face spanner into the positions provided for this.



Gas generator charge 0.8 g DN50–DN150 **Article no. 010138**

Reactivation kit

Order new gas generators, buffers and hologram stickers immediately. To do so, use the BF0127DE form, which can be downloaded at www.service.rico.ch or http://www.rico.ch/de/download.

Ensure that the new gas generators and buffers are placed in the spare gas generator holders provided, as soon as they are delivered, and are thus always available.

CAUTION!

Do not yet move the ball valve or REDEX® Slide into the “active” position.

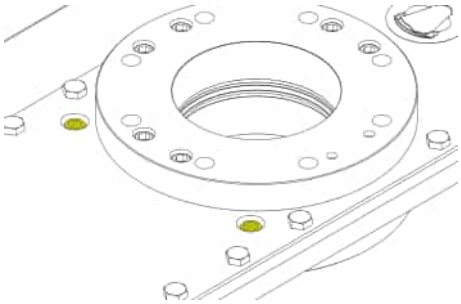


Fig. 34: Buffer without locking screws

9. Replace the buffers

NOTICE!
PPE (personal protective equipment) must be put on prior to replacing the buffers.

Wear eye protection

Wear gloves

- Remove the locking screw on the top of the housing and put it to one side.
- Move the slide valve or slide blade to the “open” position as per the functional test. *Chapter 6.2.1 ‘Functionality test’ on page 30*

  If this is not successful, extend the buffers using a large screwdriver, so that the slide blade can be actuated or opened pneumatically.
- Remove the destroyed buffers using pliers and/or a screwdriver.
- Insert the new buffers included in the delivery.
- Re-tighten the locking screws firmly.

10. Change the hologram stickers on the housing (blue)

- Remove the existing hologram sticker and replace it with the new one so that it has the same number as the sticker on the gas generator holder (red).

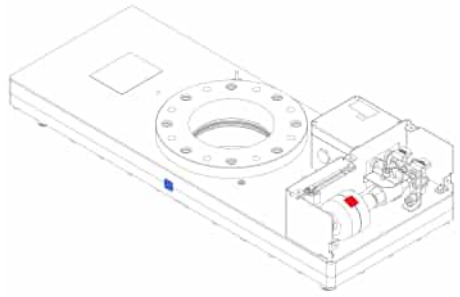


Fig. 35: Hologram stickers

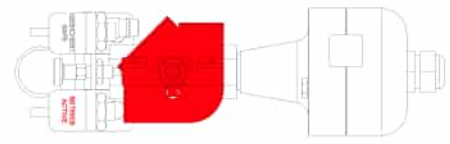


Fig. 36: Gas generator, active position

11. Move the REDEX® Slide into the “active” position

Put the REDEX® Slide or ball valve back in the “active” position.

12. Fit the cover of the gas generator holder.

⇨ **The slide valve is ready for operation again.**

7.2 Replacing the gas generator holder

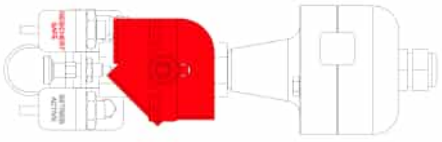


Fig. 37: Gas generator, “secured” position

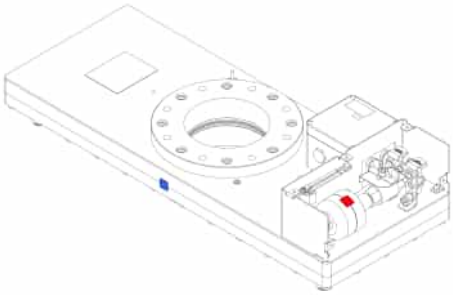


Fig. 38: Hologram stickers

1. Set the REDEX® Slide to the “secured” position if it is not already in this position.
   - Remove the cover of the cladding of the gas generator holder and put it aside with the screws.
   - Tighten the locking bolt, hold it firmly and turn the ball valve simultaneously so that the cam switch sends a signal for the “secured” position via the switch.
2. Remove the hologram sticker between the cap and gas generator holder (red).
3. Remove the hexagon screws holding the cap in place. Remove the cap.
4. Unplug the ignition cable

   Remove the plug-in connector for the gas generator by loosening the safeguard and pulling out the plug-in connector.
5. Remove the gas generator
   - Take the face spanner included in the delivery out of its holder.
   - Loosen the locking screw from the gas generator holder and remove it.
   - Remove the activated gas generator with pliers and dispose of it. *Chapter 9 ‘REDEX® Slide disposal’ on page 58*
6. Remove the junction box
   - Open the junction box by loosening the four screws.
   - Remove the junction box by loosening the four cylinder head screws inside the junction box.

   There is no need to interfere with the cables.
   - Remove the entire cladding of the gas generator holder.
   - Remove the spare gas generator holder.
   - Remove the holder of both switches for the position “active” and “secured”, and the ground cable.

   ⇨ The gas generator holder is now free.
7. Remove the gas generator holder
   - Heat the fitting with a hot air dryer so that it can be “unlocked” and loosened.
   - Turn the gas generator holder (including the threaded fitting) until it can be removed, and dispose of the gas generator holder.
8. Via the pneumatic connection “ZU/CLOSE”, apply 6 bar compressed air to the REDEX® Slide for 15 seconds in this position. This will blow out any residue from the gas generator.

9. Coat the new thread fitting with Loctite 577 thread sealant.
10. Now, screw on the new gas generator holder so that the axis of the ball valve is parallel to the housing.

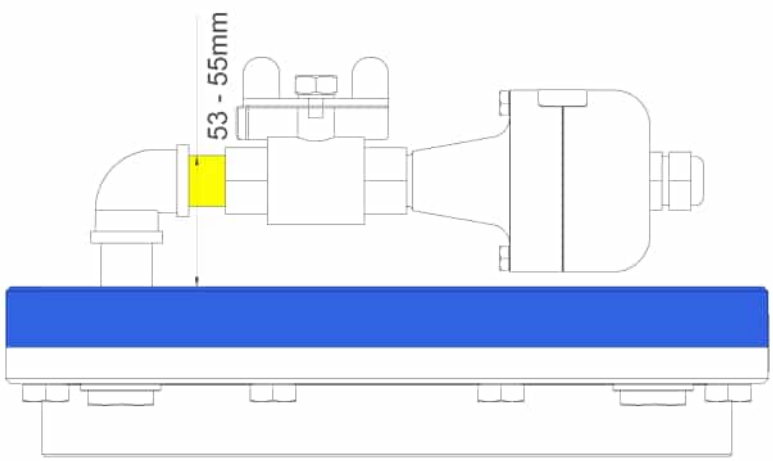


Fig. 39: Installation height, gas generator holder

11. Install the universal holder, cladding and junction box.

    Install the switch holder with the earthing. Ensure that the cable between the junction box and switch goes under the gas generator holder and switch holder.
12. Now, move the ball valve or **REDEX® Slide into the “secured” position**.
13. Assemble or fix the cladding of the gas generator holder again.
14. Fit and seal the junction box correctly once again.
15. Continue according to *Chapter 7.1 ‘Gas generator replacement’ on page 36*, point 8 “Inserting the gas generator”.

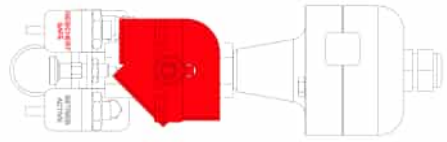


Fig. 40: Gas generator, “secured” position

7.3 Replace the active seals

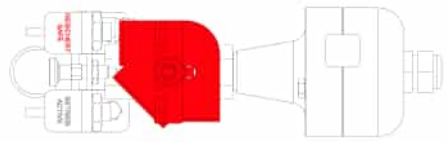


Fig. 41: Gas generator, “secured” position

1. Set the REDEX® Slide to the “secured” position if it is not already in this position.
   - Remove the cover of the cladding of the gas generator holder and put it aside with the screws.
   - Tighten the locking bolt, hold it firmly and turn the ball valve simultaneously so that the cam switch sends a signal for the “secured” position via the switch.

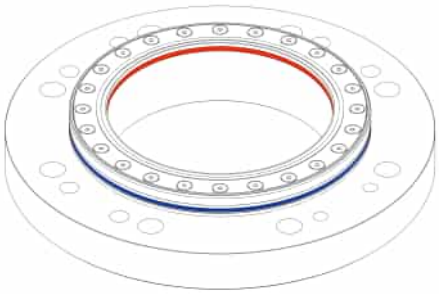


Fig. 42: Flange seal inner (red) and outer (blue)

2. Remove the flange connection

   First remove a flange, change the seals and repeat the following steps for the other side.

   - Loosen and remove all screws on the respective flange.

   If there were shim rings on the side on which you just removed the flange, re-insert them in the same position when assembling the flange.

3. On the exposed flange, remove the disc-shaped active seal and both inner and outer flange seals.
4. Clean the flange.
5. Fit the new seals in reverse order. Secure the locking screws of the active seal with Loctite 290. Note the permitted tightening torques of the screws. *Chapter 4.5 ‘Tightening torques’ on page 22*
6. Fit the flange back into its original position. Note the permitted tightening torques of the screws. *Chapter 4.5 ‘Tightening torques’ on page 22*
7. Repeat steps 2 to 6 for the second flange connection.
8. Perform a functionality test. *Chapter 6.2.1 ‘Functionality test’ on page 30*

7.4 Replacing the seals on the housing and gas generator holder

1. Set the REDEX® Slide to the “secured” position if it is not already in this position.

   - Remove the cover of the cladding of the gas generator holder and put it aside with the screws.
   - Tighten the locking bolt, hold it firmly and turn the ball valve simultaneously so that the cam switch sends a signal for the “secured” position via the switch.

2. Remove the housing

   - Loosen all screws on the top of the housing.
   - Remove the top of the housing using the lifting eye bolts provided by fastening them to the housing and put this half of the housing aside.

3. Remove the buffer and put it aside
4. Remove the slide blade

   Remove the entire slide blade and put it aside on a clean, scratch-free surface.

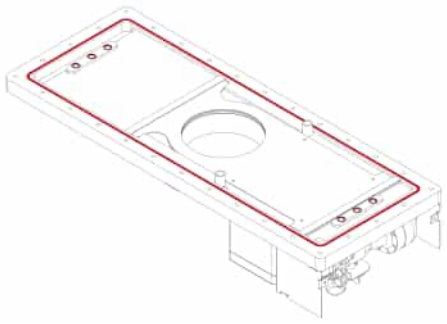


Fig. 43: Housing seal

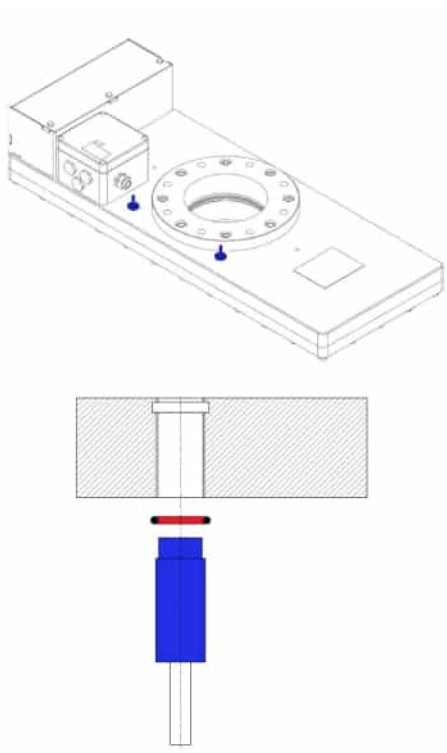
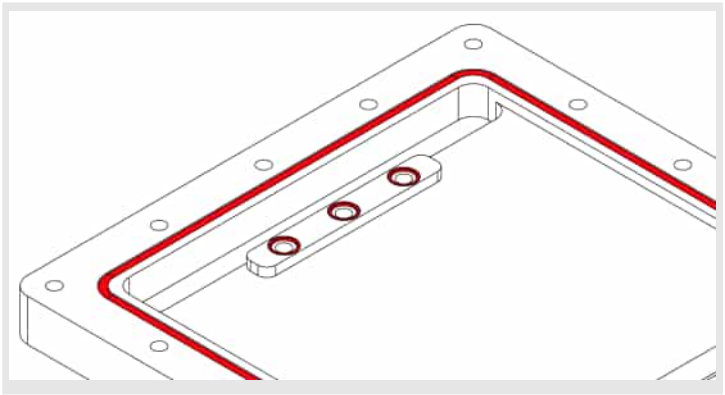


Fig. 44: Housing view of switch incl. switch section, REDEX Slide

5. Replace the seal on non-return valves

- Remove the face spanner under the cladding of the gas generator holder.
- Unscrew the non-return valve from the relevant side using the face spanner.
- Replace the seal or O-ring with a new one.
- Screw back the non-return valve in a flush-mounted manner so that the seal is compressed.

6. Remove and dispose of the housing seal.



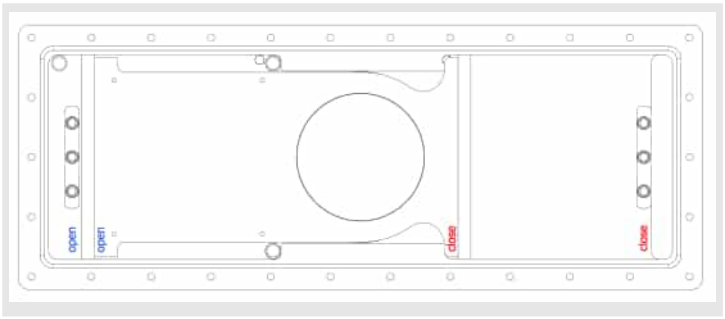
7. Remove the inductive switches (blue) for open/closed position monitoring and lever the inserted O-ring (red) out of the housing.

8. Clean both halves of the housing using soapy water and then dry them.

9. Insert the O-rings for open/close position monitoring back into the housing.

10. Insert the new housing seal.

11. Reinsert the slide blade correctly (open to open and close to close).



12. Re-assemble the housing and screw it together properly.
↳ *Chapter 4.5 'Tightening torques' on page 22*

13. Insert the buffers properly from outside. See also Fig. 34.

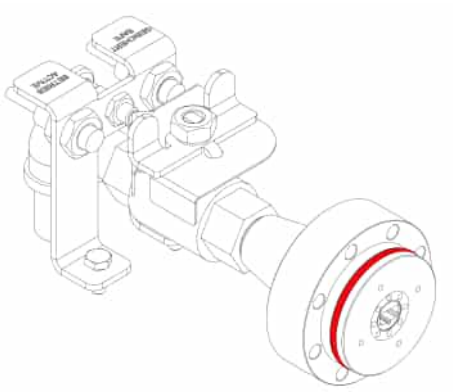


Fig. 45: Seal for the gas generator holder

14. Replace the seal for the gas generator holder

Follow points 1 to 5 to replace the seal of the gas generator holder. Replace the gas generator. ↳ *Chapter 8.1 'Gas generator replacement' on page 47*

15. Replace the seal and follow points 10 to 12. Replace the gas generator holder. ↳ *Chapter 7.2 'Replacing the gas generator holder' on page 40*

7.5 Replacing the locking screw

1. Set the REDEX® Slide to the "secured" position if it is not already in this position.

- Remove the cover of the cladding of the gas generator holder and put it aside with the screws.
- Tighten the locking bolt, hold it firmly and turn the ball valve simultaneously so that the cam switch sends a signal for the "secured" position via the switch.

2. Remove the locking screws

- Loosen the two locking screws on the top of the housing and remove them.
- Fit the new locking screws in the places intended for them.
- Re-tighten the locking screws on the upper housing firmly. ↳ *Further information on page 22*

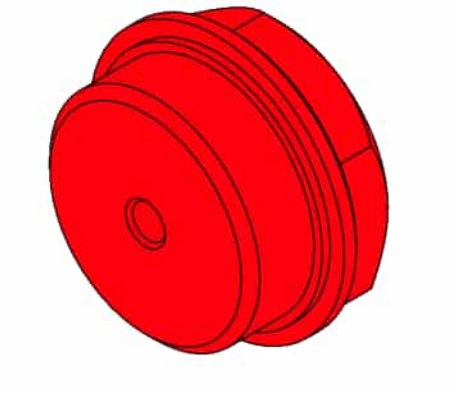


Fig. 46: Locking screw

The locking screw G 3/4" is only available with the seal included, and it is therefore completely replaced in the course of an inspection.

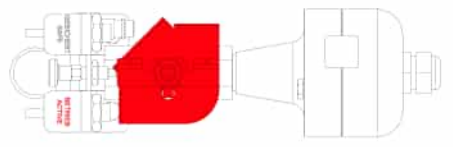


Fig. 47: Gas generator, active position

3. Move the REDEX® Slide into the "active" position

Put the ball valve back in the "active" position.

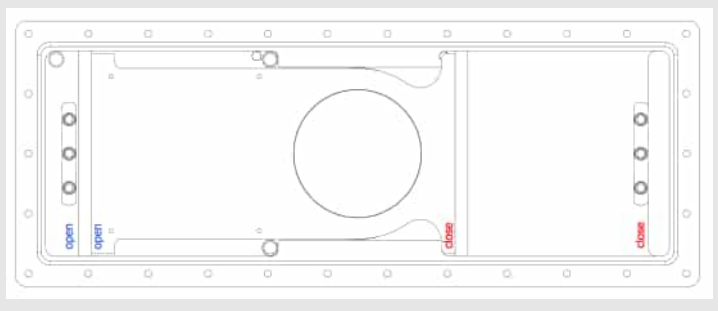
4. Fit the cover of the gas generator holder back on.

⇨ **The REDEX® Slide is ready for use again.**

7.6 Replace the slide blade

1. Set the REDEX® Slide to the “secured” position if it is not already in this position.
   - Remove the cover of the cladding of the gas generator holder and put it aside with the screws.
   - Tighten the locking bolt, hold it firmly and turn the ball valve simultaneously so that the cam switch sends a signal for the “secured” position via the switch.
2. Remove the housing
   - Loosen all screws on the top of the housing.
   - Remove the upper half of the housing using the lifting eye bolts provided by fastening them to the housing and put this half of the housing aside.
3. Remove the buffer and put it aside.
4. Remove the slide blade

   Remove the entire slide blade and dispose of it.
5. Clean both halves of the housing using soapy water and then dry them.
6. Replace the slide blade



   - Now place the new slide blade completely into one half of the housing.
   - Check whether the slide blade is inserted correctly and can be moved by hand past the ball bearings to the positions “open” and “close”.

> *The slide blade is inserted correctly if the markings are aligned with each other **(open to open and close to close).***
>
> *In the REDEX® Slide with FEP-O-seals, the nominal width/passage is faceted.*
>
> *In the REDEX® Slide with active seals, the nominal width/passage is not faceted.*

7. Assemble the halves of the housing

   In order to assemble the halves of the housing, repeat steps 2 to 5 in reverse order.

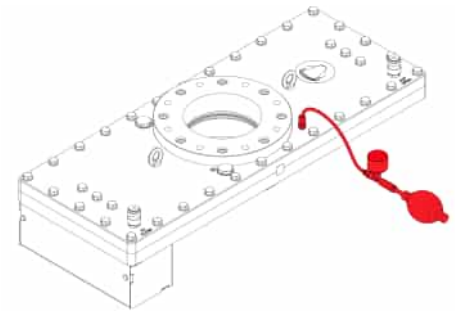


Fig. 48: REDEX® Slide with hand pump (red)

8. Check gas tightness

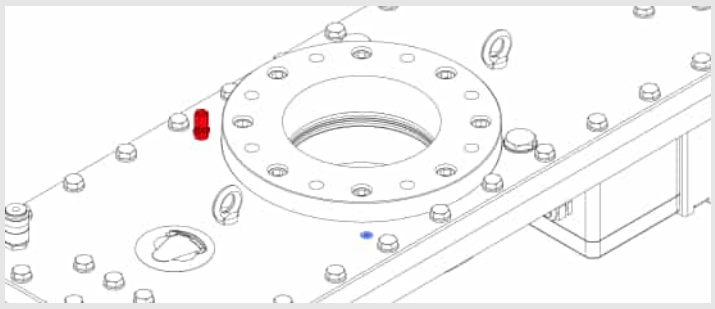
Gas-tight test for the REDEX® Slide

Blind flanges must also be installed to perform the gas-tight test of the housing in the REDEX® Slide with vacuum function. These are not included in the scope of delivery.

Gas-tight test for the REDEX® Slide with FEP-O-seals

The hand pump included in the delivery can be used for the gas-tight test of the housing in the REDEX® Slide with excess pressure function.

- Remove the threaded nipple (red) and fit the hand pump on the plug.
- Create excess pressure of 0.2 bar by pumping.



REDEX® Slide

Test pressure 0.2 bar

The device is gas-tight if the drop in pressure is ≤ 0.1 bar/min.

*The device **is not** gas-tight if the drop in pressure is > 0.1 bar/min.*

If the maximum permissible drop in pressure is exceeded, the FEB-O-seals or the active seal must be replaced and the flanges must be adjusted. ↳ *Chapter 8.3 'Replacing the FEP-O-seals' on page 52* ↳ *Chapter 7.3 'Replace the active seals' on page 41*

9. Move the REDEX® Slide into the "active" position

Put the ball valve back in the "active" position.

10. Fit the cover of the gas generator holder back on.

⇨ **The REDEX® Slide is ready for use again.**

8 Inspection, REDEX® Slide excess pressure

WARNING!

Maintenance and inspections in Ex zones

Maintenance and inspections must not be carried out in Ex zones. If this is not possible, appropriate safety measures must be taken and suitable tools must be used.

NOTICE!

Explosive event

The REDEX® Slide must be **inspected after every explosion**, when it shows **signs of wear** or after **5 years**.

Otherwise the function of the slide valve is not ensured.

8.1 Gas generator replacement

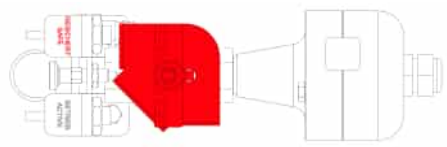


Fig. 49: Gas generator, “secured” position

1. Set the REDEX® Slide to the “secured” position if it is not already in this position.
   - Remove the cover of the cladding of the gas generator holder and put it aside with the screws.
   - Tighten the locking bolt, hold it firmly and turn the ball valve simultaneously so that the cam switch sends a signal for the “secured” position via the switch.
2. Remove the hologram stickers (blue) between the cap and gas generator holder.
3. Remove the hexagon screws holding the cap (red) in place. Remove the cap.

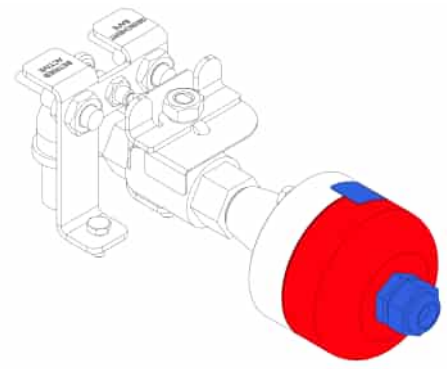
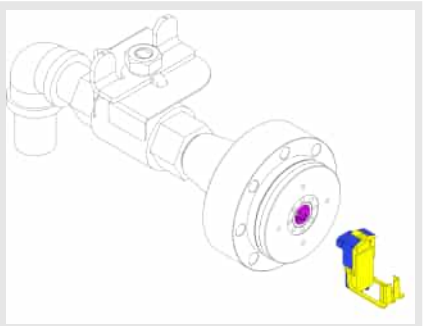


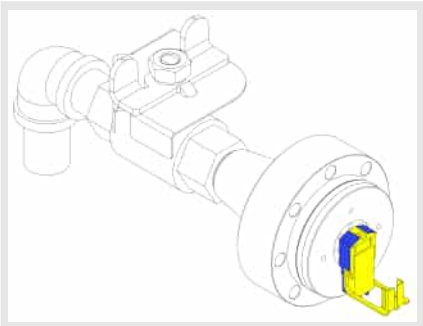
Fig. 50: Cap for gas generator holder

4. Unplug the ignition cable

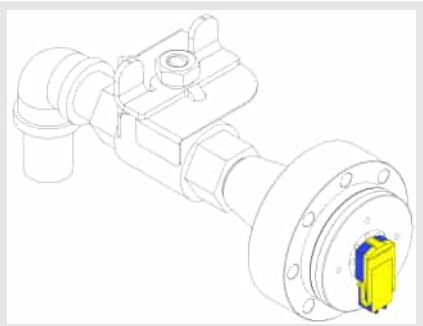
Remove the plug-in connector for the gas generator by loosening the safeguard and pulling out the plug-in connector.



Plug for REDEX® Slide DN50-DN150 unplugged



Plug for REDEX® Slide DN50-DN150 **single**-plugged



Plug for REDEX® Slide DN50-DN150 **double**-plugged

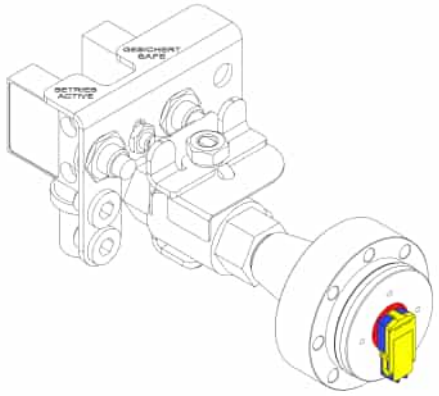


Fig. 51: Spark plug (yellow, blue) and locking screw (red)

5. Remove the gas generator

- Take the face spanner included in the delivery out of its holder.
- Loosen the locking screw from the gas generator holder and remove it.
- Remove the activated gas generator with pliers and dispose of it. ↳ *Chapter 9 'REDEX® Slide disposal' on page 58*

6. Remove gas generator residue

- Move the ball valve into the “active” position.
- Apply 6 bar compressed air to the slide valve in this position via the pneumatic connection “ZU/CLOSE” for 15 seconds.

⇨ Any gas generator residues has now been blown out from the gas generator holder and housing.

7. Before continuing with the work, move the ball valve back into the “secured” position.

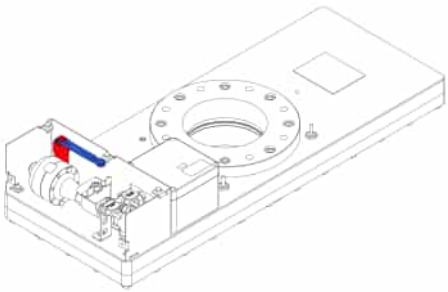
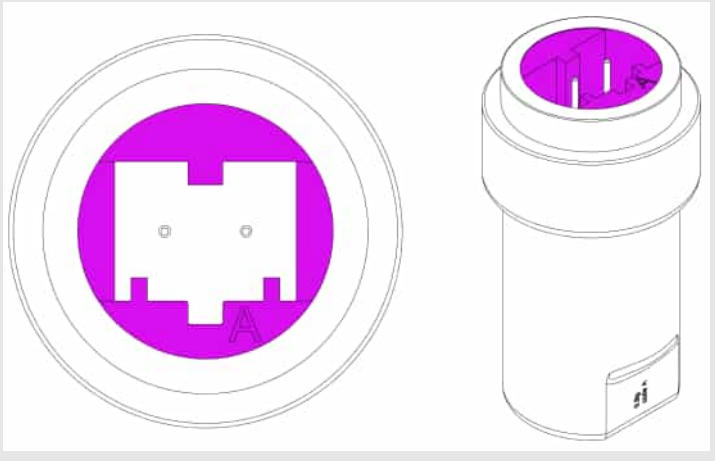


Fig. 52: Spare gas generator holder (red) and face spanner (blue)

8. Insert the gas generator

- Remove the new gas generator from the spare gas generator holder by unscrewing it.
- Remove the new gas generator, the new buffers and the hologram stickers.
- Lightly apply high-temperature grease (e.g. Klüber Wolfracoat C) to the gas generator.
  Insert the new gas generator and re-tighten with the locking screw.
- Plug the ignition cable back in so that it locks in place twice.
- Place the cap of the gas generator holder on it and fix it again with its hexagon screws.
- Stick one of the new hologram stickers on the cap and gas generator holder.
- Screw back the empty spare gas generator holder and face spanner into the positions provided for this.



Gas generator charge 0.8 g DN50–DN150 **Article no. 010138**

Reactivation kit

Order new gas generators, buffers and hologram stickers immediately. To do so, use the BF0127DE form, which can be downloaded at www.service.rico.ch or http://www.rico.ch/de/download.

Ensure that the new gas generators and buffers are placed in the spare gas generator holders provided, as soon as they are delivered, and are thus always available.

CAUTION!

Do not yet move the ball valve or REDEX® Slide into the “active” position.

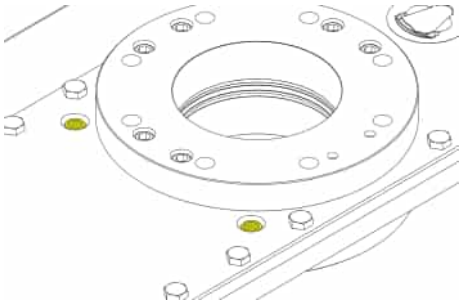


Fig. 53: Buffer without locking screws

9. Replace the buffers

> **NOTICE!**
> PPE (personal protective equipment) must be put on prior to replacing the buffers.

Wear eye protection

Wear gloves

- Remove the locking screw on the top of the housing and put it to one side.
- Move the slide valve or slide blade to the “open” position as per the functional test. *Chapter 6.2.1 ‘Functionality test’ on page 30*

  If this is not successful, extend the buffers using a large screwdriver, so that the slide blade can be actuated or opened pneumatically.
- Remove the destroyed buffers using pliers and/or a screwdriver.
- Insert the new buffers included in the delivery.
- Re-tighten the locking screws firmly.

10. Change the hologram stickers on the housing (blue)

- Remove the existing hologram sticker and replace it with the new one so that it has the same number as the sticker on the gas generator holder (red).

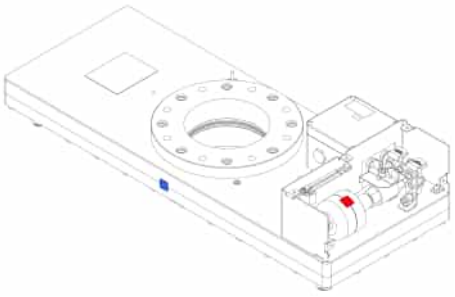


Fig. 54: Hologram stickers

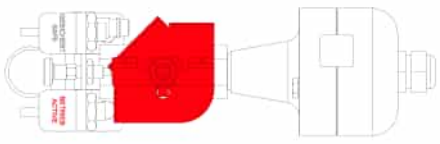


Fig. 55: Gas generator, active position

11. Move the REDEX® Slide into the “active” position

Put the REDEX® Slide or ball valve back in the “active” position.

12. Fit the cover of the gas generator holder.

⇨ **The slide valve is ready for operation again.**

8.2 Replacing the gas generator holder

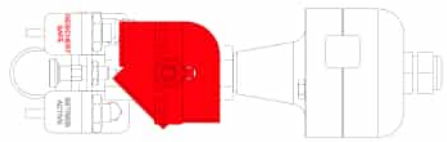


Fig. 56: Gas generator, “secured” position

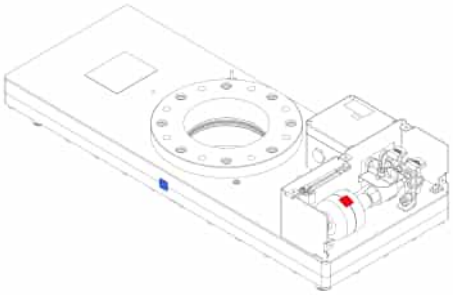


Fig. 57: Hologram stickers

1. Set the REDEX® Slide to the “secured” position if it is not already in this position.
   - Remove the cover of the cladding of the gas generator holder and put it aside with the screws.
   - Tighten the locking bolt, hold it firmly and turn the ball valve simultaneously so that the cam switch sends a signal for the “secured” position via the switch.
2. Remove the hologram sticker between the cap and gas generator holder (red).
3. Remove the hexagon screws holding the cap in place. Remove the cap.
4. Unplug the ignition cable

   Remove the plug-in connector for the gas generator by loosening the safeguard and pulling out the plug-in connector.
5. Remove the gas generator
   - Take the face spanner included in the delivery out of its holder.
   - Loosen the locking screw from the gas generator holder and remove it.
   - Remove the activated gas generator with pliers and dispose of it. *Chapter 9 ‘REDEX® Slide disposal’ on page 58*
6. Remove the junction box
   - Open the junction box by loosening the four screws.
   - Remove the junction box by loosening the four cylinder head screws inside the junction box.

   There is no need to interfere with the cables.
   - Remove the entire cladding of the gas generator holder.
   - Remove the spare gas generator holder.
   - Remove the holder of both switches for the position “active” and “secured”, and the ground cable.

   ⇨ The gas generator holder is now free.
7. Remove the gas generator holder
   - Heat the fitting with a hot air dryer so that it can be “unlocked” and loosened.
   - Turn the gas generator holder (including the threaded fitting) until it can be removed, and dispose of the gas generator holder.
8. Via the pneumatic connection “ZU/CLOSE”, apply 6 bar compressed air to the REDEX® Slide for 15 seconds in this position. This will blow out any residue from the gas generator.

9. Coat the new thread fitting with Loctite 577 thread sealant.
10. Now, screw on the new gas generator holder so that the axis of the ball valve is parallel to the housing.

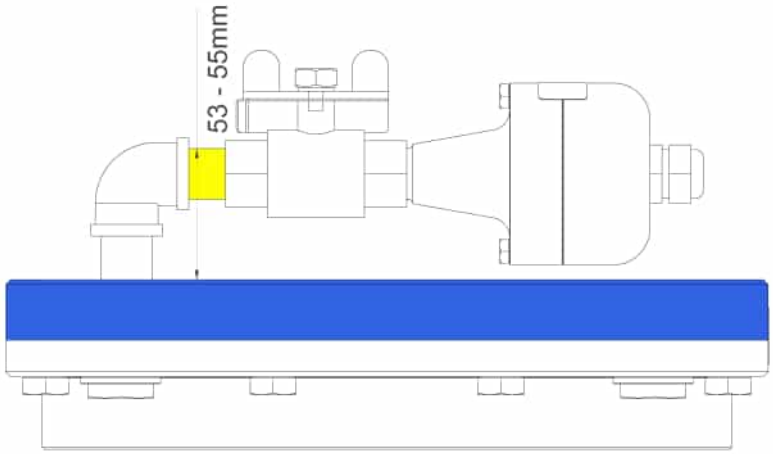


Fig. 58: Installation height, gas generator holder

11. Install the universal holder, cladding and junction box.

    Install the switch holder with the earthing. Ensure that the cable between the junction box and switch goes under the gas generator holder and switch holder.
12. Now, move the ball valve or **REDEX® Slide into the “secured” position**.
13. Assemble or fix the cladding of the gas generator holder again.
14. Fit and seal the junction box correctly once again.
15. Continue according to *Chapter 8.1 ‘Gas generator replacement’ on page 47*, point 8 “Inserting the gas generator”.

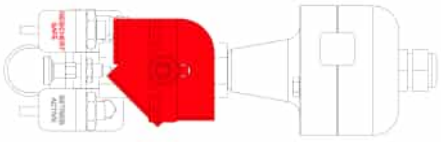


Fig. 59: Gas generator, “secured” position

8.3 Replacing the FEP-O-seals

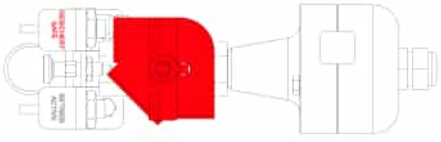


Fig. 60: Gas generator, “secured” position

1. Set the REDEX® Slide to the “secured” position if it is not already in this position.
   - Remove the cover of the cladding of the gas generator holder and put it aside with the screws.
   - Tighten the locking bolt, hold it firmly and turn the ball valve simultaneously so that the cam switch sends a signal for the “secured” position via the switch.

2. Remove the flange connection

   First remove a flange, change the FEP-O-seals and repeat the following steps for the other side.

   - Loosen and remove all screws on the respective flange.

   If there were shim rings on the side on which you just removed the flange, re-insert them in the same position when assembling the flange.

3. On the flange that is now free, remove the FEP-O-seals and the outer flange seal.
4. Clean the flange.
5. Fit the new seals in reverse order.
6. Fit the flange back into its original position. Note the permitted tightening torques of the screws. *Chapter 4.5 'Tightening torques' on page 22*
7. Repeat steps 2 to 6 for the second flange connection.
8. Perform a functionality test. *Chapter 6.2.1 'Functionality test' on page 30*

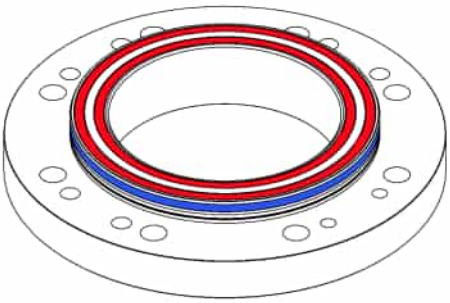


Fig. 61: FEP-O-seal (red) and outer flange seal (blue)

8.4 Replacing the seals on the housing and gas generator holder

1. Set the REDEX® Slide to the "secured" position if it is not already in this position.

   - Remove the cover of the cladding of the gas generator holder and put it aside with the screws.
   - Tighten the locking bolt, hold it firmly and turn the ball valve simultaneously so that the cam switch sends a signal for the "secured" position via the switch.

2. Remove the housing

   - Loosen all screws on the top of the housing.
   - Remove the top of the housing using the lifting eye bolts provided by fastening them to the housing and put this half of the housing aside.

3. Remove the buffer and put it aside
4. Remove the slide blade

   Remove the entire slide blade and put it aside on a clean, scratch-free surface.

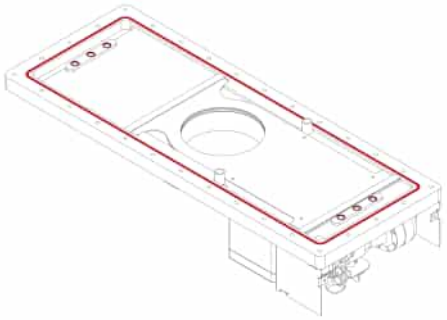


Fig. 62: Housing seal

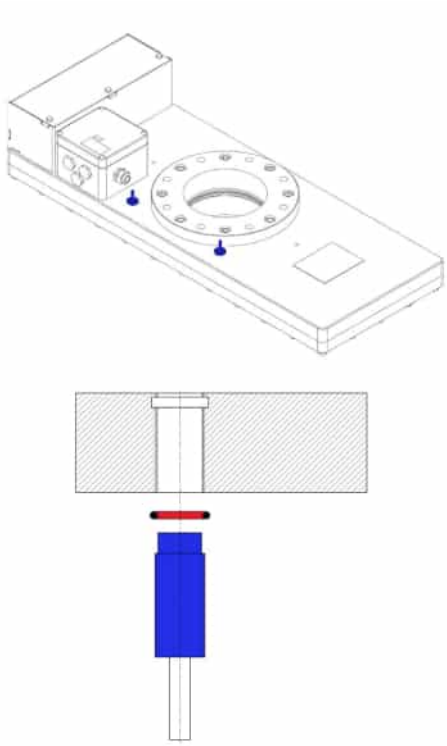
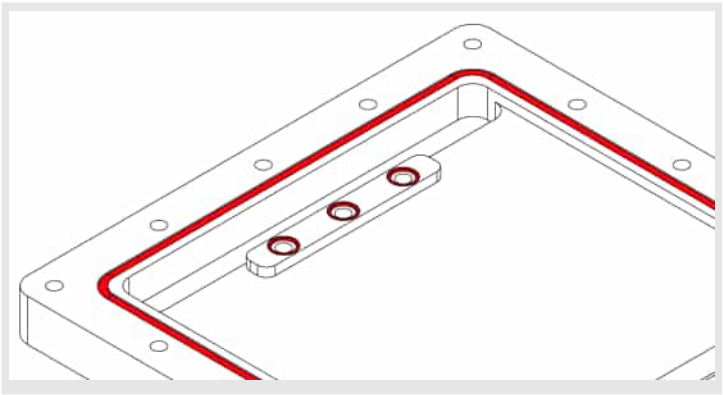


Fig. 63: Housing view of switch incl. switch section, REDEX Slide

5. Replace the seal on non-return valves

- Remove the face spanner under the cladding of the gas generator holder.
- Unscrew the non-return valve from the relevant side using the face spanner.
- Replace the seal or O-ring with a new one.
- Screw back the non-return valve in a flush-mounted manner so that the seal is compressed.

6. Remove and dispose of the housing seal.



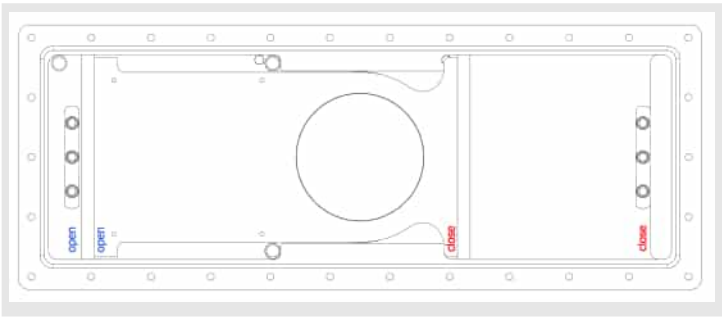
7. Remove the inductive switches (blue) for open/closed position monitoring and lever the inserted O-ring (red) out of the housing.

8. Clean both halves of the housing using soapy water and then dry them.

9. Insert the O-rings for open/close position monitoring back into the housing.

10. Insert the new housing seal.

11. Reinsert the slide blade correctly (open to open and close to close).



12. Re-assemble the housing and screw it together properly.
↳ *Chapter 4.5 'Tightening torques' on page 22*

13. Insert the buffers properly from outside. See also Fig. 53.

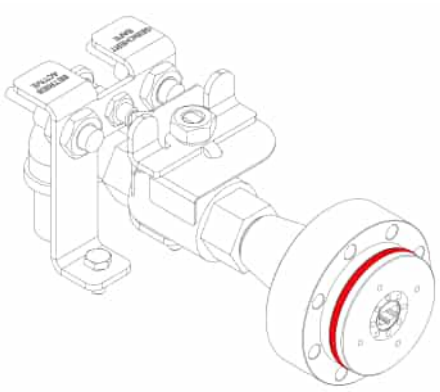


Fig. 64: Seal for the gas generator holder

14. Replace the seal for the gas generator holder

Follow points 1 to 5 to replace the seal of the gas generator holder. Replace the gas generator. ↳ *Chapter 8.1 'Gas generator replacement' on page 47*

15. Replace the seal and follow points 10 to 12. Replace the gas generator holder. ↳ *Chapter 8.2 'Replacing the gas generator holder' on page 51*

8.5 Replacing the locking screw

1. Set the REDEX® Slide to the "secured" position if it is not already in this position.

- Remove the cover of the cladding of the gas generator holder and put it aside with the screws.
- Tighten the locking bolt, hold it firmly and turn the ball valve simultaneously so that the cam switch sends a signal for the "secured" position via the switch.

2. Remove the locking screws

- Loosen the two locking screws on the top of the housing and remove them.
- Fit the new locking screws in the places intended for them.
- Re-tighten the locking screws on the upper housing firmly. ↳ *Further information on page 22*

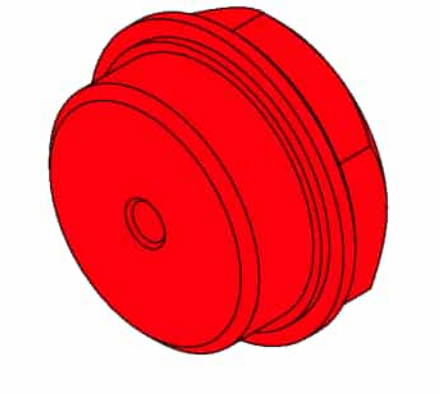


Fig. 65: Locking screw

The locking screw G 3/4" is only available with the seal included, and it is therefore completely replaced in the course of an inspection.

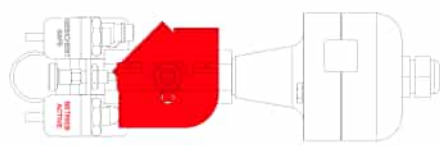


Fig. 66: Gas generator, active position

3. Move the REDEX® Slide into the "active" position

Put the ball valve back in the "active" position.

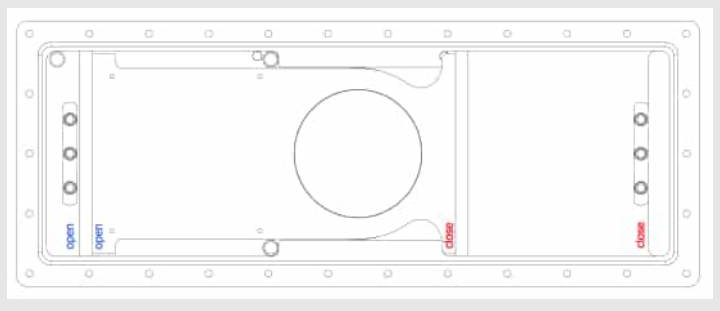
4. Fit the cover of the gas generator holder back on.

⇨ **The REDEX® Slide is ready for use again.**

8.6 Replace the slide blade

1. Set the REDEX® Slide to the “secured” position if it is not already in this position.
   - Remove the cover of the cladding of the gas generator holder and put it aside with the screws.
   - Tighten the locking bolt, hold it firmly and turn the ball valve simultaneously so that the cam switch sends a signal for the “secured” position via the switch.
2. Remove the housing
   - Loosen all screws on the top of the housing.
   - Remove the upper half of the housing using the lifting eye bolts provided by fastening them to the housing and put this half of the housing aside.
3. Remove the buffer and put it aside.
4. Remove the slide blade

   Remove the entire slide blade and dispose of it.
5. Clean both halves of the housing using soapy water and then dry them.
6. Replace the slide blade



   - Now place the new slide blade completely into one half of the housing.
   - Check whether the slide blade is inserted correctly and can be moved by hand past the ball bearings to the positions “open” and “close”.

> *The slide blade is inserted correctly if the markings are aligned with each other **(open to open and close to close).***
>
> *In the REDEX® Slide with FEP-O-seals, the nominal width/passage is faceted.*
>
> *In the REDEX® Slide with active seals, the nominal width/passage is not faceted.*

7. Assemble the halves of the housing

   In order to assemble the halves of the housing, repeat steps 2 to 5 in reverse order.

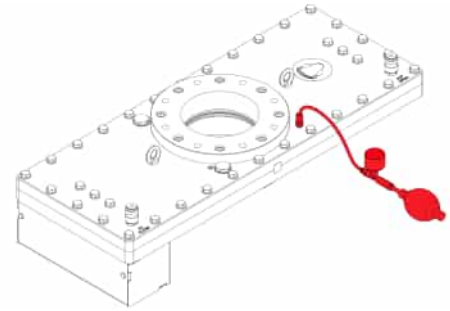


Fig. 67: REDEX® Slide with hand pump (red)

8. Check gas tightness

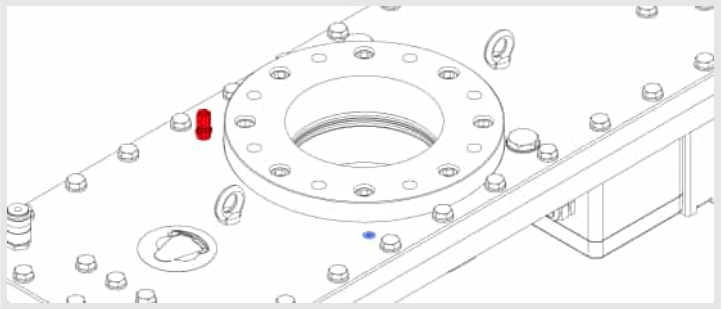
Gas-tight test for the REDEX® Slide

Blind flanges must also be installed to perform the gas-tight test of the housing in the REDEX® Slide with vacuum function. These are not included in the scope of delivery.

Gas-tight test for the REDEX® Slide with FEP-O-seals

The hand pump included in the delivery can be used for the gas-tight test of the housing in the REDEX® Slide with excess pressure function.

- Remove the threaded nipple (red) and fit the hand pump on the plug.
- Create excess pressure of 0.2 bar by pumping.



REDEX® Slide

Test pressure 0.2 bar

The device is gas-tight if the drop in pressure is ≤ 0.1 bar/min.

*The device **is not** gas-tight if the drop in pressure is > 0.1 bar/min.*

If the maximum permissible drop in pressure is exceeded, the FEB-O-seals or the active seal must be replaced and the flanges must be adjusted. ↳ *Chapter 8.3 ‘Replacing the FEP-O-seals’ on page 52* ↳ *Chapter 7.3 ‘Replace the active seals’ on page 41*

9. Move the REDEX® Slide into the “active” position

Put the ball valve back in the “active” position.

10. Fit the cover of the gas generator holder back on.

⇨ **The REDEX® Slide is ready for use again.**

9 REDEX® Slide disposal

9.1 Disposal

The product must be handed over to a specialised disposal company which is able to recycle the separated materials, in accordance with the locally applicable disposal regulations. A copy of the operating instructions must be given to the disposal company. The manufacturer bears no liability for damages to people, material or the environment which result from improper disposal of the product.

9.2 Gas generator

DANGER!

Non-ignited gas generators

Gas generators which have not been ignited must be disposed of by an **authorised company**. If you have any questions, please contact us at *info@rico.ch*.

Ignited gas generators

Gas generators which have been ignited can be sent to a normal metal processing plant.

10 Maintenance book

Maintenance book

Maintenance book

Customer / Kunde / Client:	
Type / Typ / Modèle: Fabrication no. / Fabrikations-Nr. / No. de fabrication:	
Installed at / Installiert in Anlage / Installée chez:	
Date of delivery / Lieferdatum / Date de livraison: Date valve was put into service / Inbetriebnahme / Date de mise en service:	

Date / Datum	Visit / Besuch / Visite		Time / Zeit / Heure	Objection / Beanstandung / Constatation
	Service/Wartung			
	Repair / Reperatur / Réparation	Solved / erledigt / éxecution		
	Fault / Störung / Défault			
	Service/Wartung			
	Repair / Reperatur / Réparation	Solved / erledigt / éxecution		
	Fault / Störung / Défault			
	Service/Wartung			
	Repair / Reperatur / Réparation	Solved / erledigt / éxecution		
	Fault / Störung / Défault			
	Service/Wartung			
	Repair / Reperatur / Réparation	Solved / erledigt / éxecution		
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	Service/Wartung			
	Repair / Reperatur / Réparation	Solved / erledigt / éxecution		
	Fault / Störung / Défault			
	Service/Wartung			
	Repair / Reperatur / Réparation	Solved / erledigt / éxecution		
	Fault / Störung / Défault			

Reason / Ursache / Cause	Repair / Behebung / Réparation	Spare Parts / Ersatzteile / Pièce de rechange	Engineer. / Techn. / Ing.

Date / Datum	Visit / Besuch / Visite		Time / Zeit / Heure	Objection / Beanstandung / Constatation
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	Repair / Reperatur / Réparation	Solved / erledigt / éxecution		
	Fault / Störung / Défault			
	Service/Wartung			
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Reason / Ursache / Cause	Repair / Behebung / Réparation	Spare Parts / Ersatzteile / Pièce de rechange	Engineer. / Techn. / Ing.

Date / Datum	Visit / Besuch / Visite		Time / Zeit / Heure	Objection / Beanstandung / Constatation
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	Service/Wartung			
	Repair / Reperatur / Réparation	Solved / erledigt / éxecution		
	Fault / Störung / Défault			

Reason / Ursache / Cause	Repair / Behebung / Réparation	Spare Parts / Ersatzteile / Pièce de rechange	Engineer. / Techn. / Ing.

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