STEINEL®

Repair instructions

for nitrogen cylinders

Legal notices

This documentation is intended solely for the owners and their personnel.

(English translation of the original German text).

Responsible for content

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Repair instructionsfor nitrogen cylinders

Edition 3.2 English
Date of issue 10/2023

Changes to the design and product that serve to improve the product remain reserved.

Table of contents

1 Introduction

1.1 Preface

Dear technical supervisor,

You are facing the task of repairing nitrogen cylinders.
These repair instructions will help you during this responsible job.

Please read these repair instructions carefully and especially pay attention to the safety instructions!

If you have questions about this product, our employees are available to assist you.

Your STEINEL Normalien AG

1.2 Product identification/product information

Validity
The descriptions contained in these repair instructions (RI) solely apply to nitrogen cylinders as they are described here and as they were developed and built by the manufacturer.

Storage
These repair instructions are part of the product manual of the nitrogen cylinders and are meant for the technical supervisors.

1.3 Obligations of the personnel

Only trained specialist personnel may be tasked with working on the nitrogen cylinders (⇨ RI, 2.3 Authorised personnel) Please also observe the notes of the operating instructions regarding nitrogen cylinders.

In the interest of everybody involved, please observe the following instructions:

- Refrain from engaging in any manner of working that could be considered unsafe!
- Observe all hazard and warning notices contained in these repair instructions!
- In addition to this documentation, observe general, legal and otherwise binding regulations regarding occupational safety and accident prevention as well as environmental protection!
- Wear the appropriate protective clothing corresponding to the work that needs to be performed!
- Do not wear long hair open, loose-fitting clothing or jewellery!
- Only perform those tasks for which you have been sufficiently trained and instructed!

1.4 Warranty and liability

For the use of the nitrogen cylinders, our “General terms and conditions” always apply.

The “General terms and conditions” are accessible via our homepage.

Warranty or liability claims in case of damage to persons or property are precluded if they were the result of one or several of the following causes:

- handling in a non-intended manner.
- improper assembly, commissioning, operation, maintenance, repair and shutdown.
- non-observance of the notices contained in these repair instructions regarding safety, commissioning, operation, maintenance, repair, decommissioning and shutdown.
- unauthorised structural alterations.
- insufficient monitoring and maintenance.
- external elements or force majeure.

In order to maintain functional reliability, only original spare parts, tools and appliances of the manufacturer may be used.

1.5 Symbols in this manual

1.5.1 Danger warning levels

DANGER

DANGER indicates danger which, if not avoided, has a high chance of resulting in death or serious injury.

WARNING

WARNING indicates danger which, if not avoided, has a medium chance of resulting in death or serious injury.

CAUTION

CAUTION indicates danger which, if not avoided, has a low chance of resulting in minor or moderate injury.

ATTENTION

Obligation to specific conduct or a task for the safe handling of the nitrogen cylinders in order to avoid property damage.

This symbol points to texts that contain important instructions/comments and tips.

1.5.2 Danger symbols

Warns of dangers leading to serious (irreversible) injuries and possibly death!

1.5.3 General symbols

➔ This arrow identifies the descriptions of tasks that you must perform.

■ This square identifies enumerations.

⇨ This arrow identifies cross references.

If cross references to other chapters occur within the text, notations are abbreviated for reasons of clarity.

Example: (⇨ RI, 2 Safety)

This means: Refer to repair instructions, Chapter 2 Safety.

If the cross reference refers to a page, figure or position number, then this information will be added at the end of the cross reference.

Example: (⇨ Fig. 4 - 4, Pos. 1)

This means: Refer to (in chapter 4 of this manual, position number 1 of figure 4).

3 Numbers in a square with a red frame refer to positions in the figures.

2.1 Safety measures

Despite utmost diligence during the design and production of nitrogen cylinders, dangers through improper handling of the nitrogen cylinder during assembly and commissioning, as well as daily use, cannot be ruled out.

WARNING

The following notices serve to recognise and avoid dangers in order to ensure a handling of nitrogen cylinders that is as safe as possible.

Compliance with the safety instructions is a prerequisite for safe operation of the nitrogen cylinders. The safety instructions must be posted visibly on the device and must be accessible at all times for the operating personnel.

During the operation of the nitrogen cylinders, country-specific safety measures and accident prevention regulations must be observed and additionally applied.

Read and observe all notices and commands within these repair instructions.

Non-observance of safety instructions and commands can result in very serious injury.

Keep the repair instructions in a safe place and supply them to the operator.

2.2 Dangers when handling the nitrogen cylinders

WARNING

Danger of injury due to uncontrolled moving parts!

Always vent the nitrogen cylinders before disassembly.

Only use the suitable, supplied discharging screw.

Always wear safety goggles during all work carried out.

Make sure that no other people are put at risk.

CAUTION

Danger of hearing damage due to loud, high-frequency noises when the gas escapes!

Vent the nitrogen cylinders in a careful and controlled manner.

Always wear ear protection during all work carried out.

CAUTION

Contact with oils, greases and screw locking fluid can lead to skin irritation and allergic reactions.

Wear protective gloves during work, or apply hand protection lotion before starting work.

2.3 Authorised personnel

Only specialist personnel trained by the STEINEL Normalien AG in the handling of nitrogen cylinders (expert, commissioned and trained personnel) may dismantle, assemble and fill the nitrogen cylinders.

Learn more about STEINEL Normalien AG's training opportunities. "Trained expert personnel" refers to persons that, based on their training, experience and manufacturer training, as well as their knowledge of relevant standards, can evaluate the tasks assigned to them and recognise potential dangers.

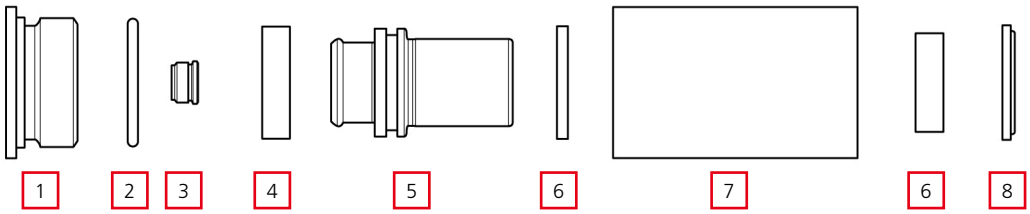
These persons must be authorised (by the person in charge of the safety of the device) and able to perform the respectively required tasks and to recognise and avoid potential dangers while doing so.

All persons involved in the assembly, commissioning, operation, inspection, maintenance and decommissioning of the nitrogen cylinders must have read and understood these repair instructions as well as the nitrogen cylinder operating instructions. The operating instructions can be found under: **www.steinel.com » Service » Operating instructions**

A copy of the repair and operating instructions must be readily available at the device.

3 Design of the nitrogen cylinder

SZ8060.1



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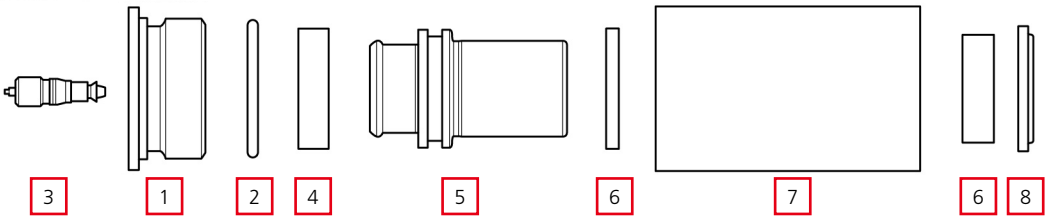

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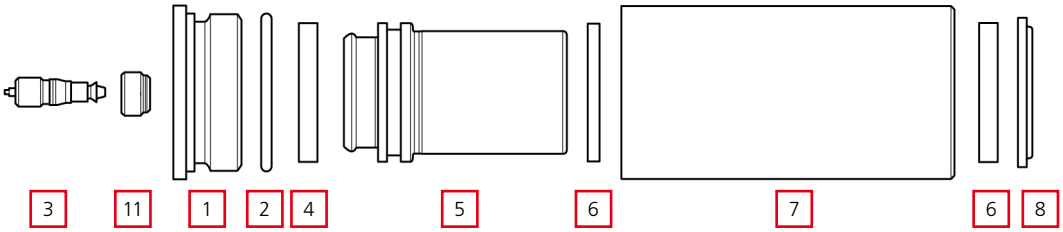
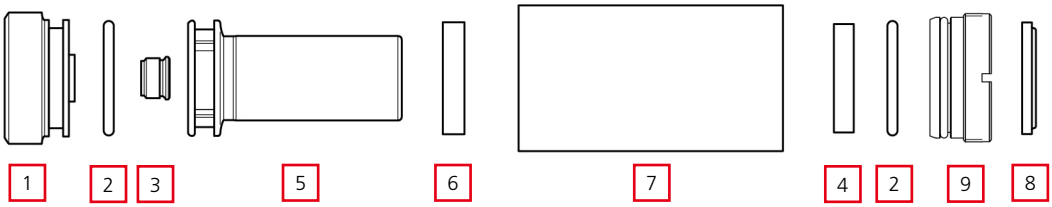
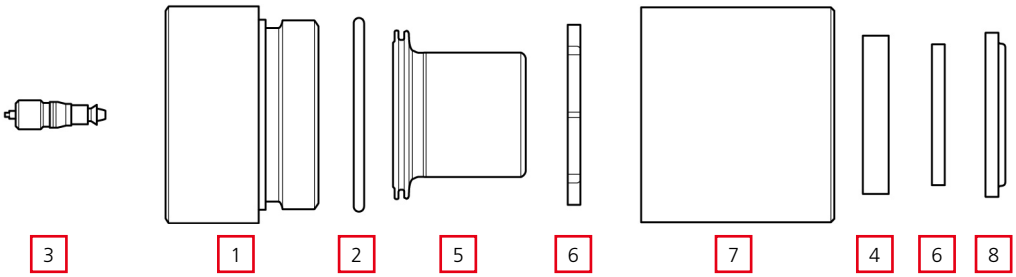


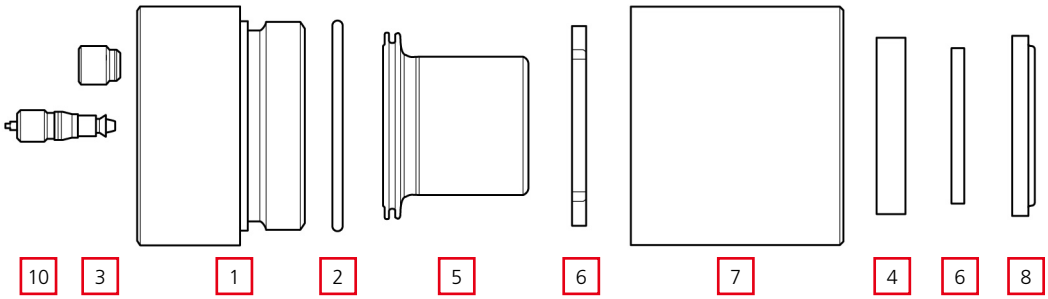
SZ8066.1, SZ7066.1



SZ8066.2, SZ7066.2

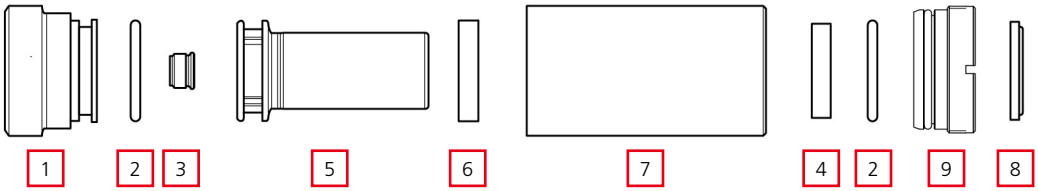


SZ8066.2B, SZ7066.2B

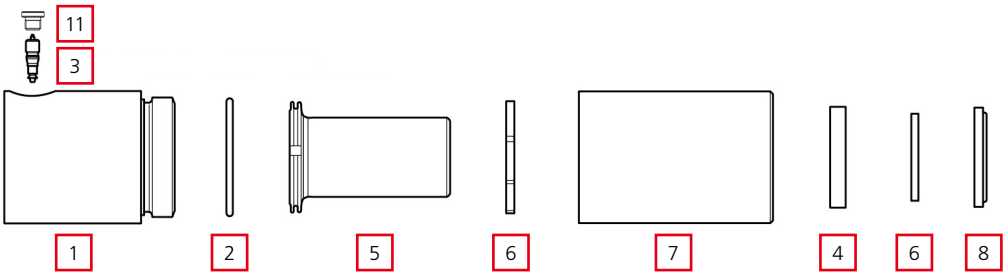


3 Design of the nitrogen cylinder

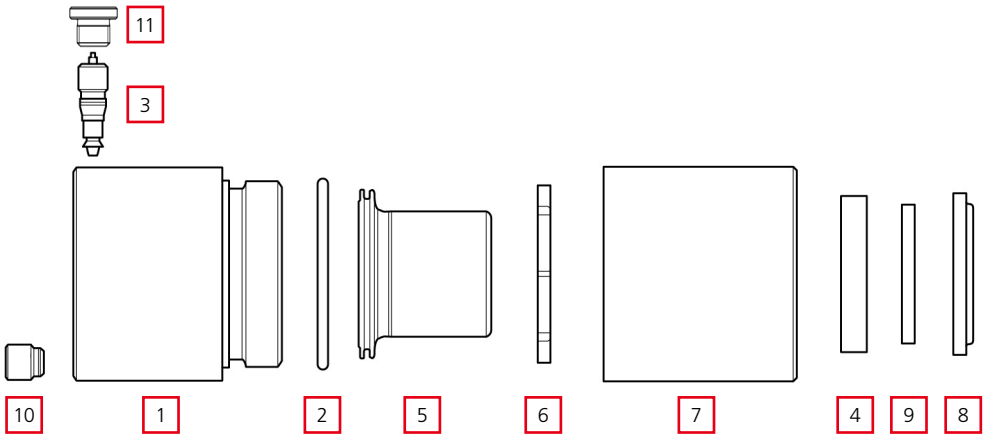
SZ8080.1, SZ7080.1



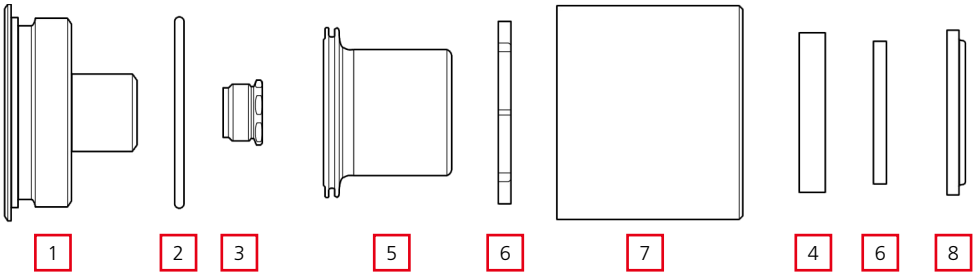
SZ8080.2, SZ7080.2



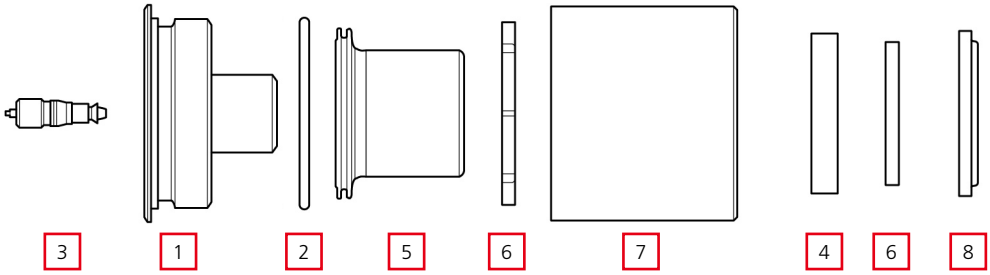
SZ8080.2B, SZ7080.2B



SZ8063.1 nur für Ø 32

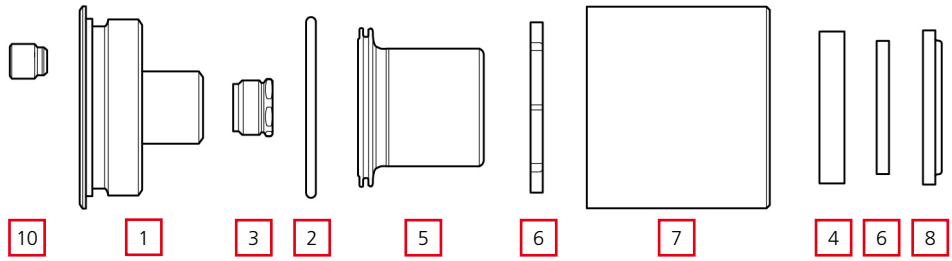


SZ8063.1 für alle Weiteren Ø



3 Design of the nitrogen cylinder

SZ8063.1B nur für Ø 32



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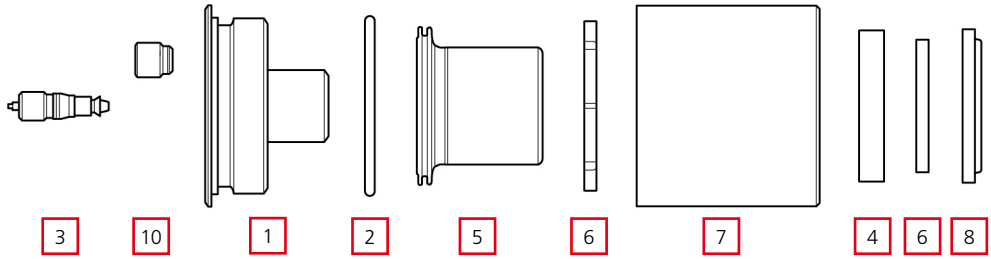

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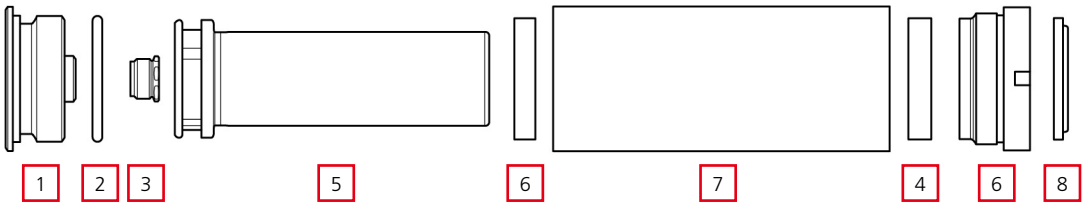

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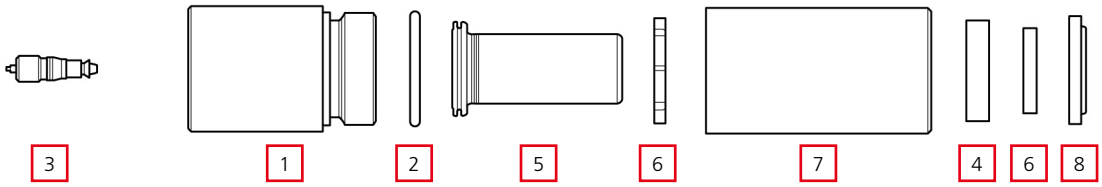

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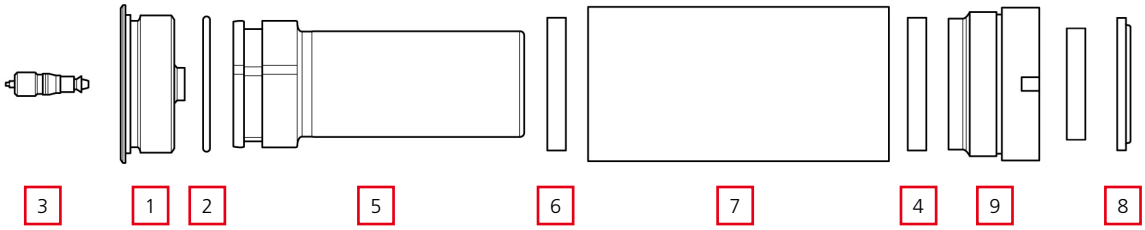

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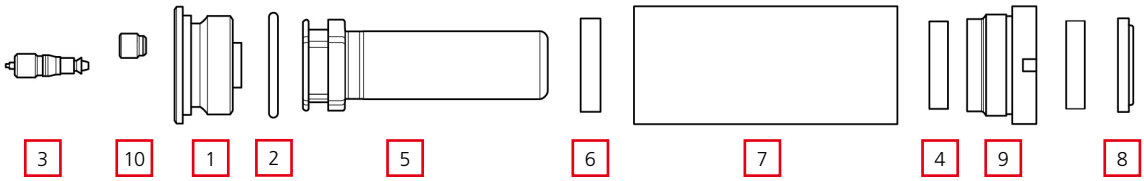


3 Design of the nitrogen cylinder

Key for the graphics

1 base

2 O-ring

3 filling valve

4 piston-/rod seal

5 piston

6 piston ring

7 housing

8 scraper

9 seal set fixture (DS fixture)

10 burst protection

11 sealing plug

4.1 Venting of the nitrogen cylinders (all series)

WARNING

Danger of injury due to uncontrolled moving parts!

Only use the suitable, supplied discharging screw for venting.

While venting, do not place your head directly over the cylinder.

Always wear safety goggles during all work carried out.

Make sure that no other people are put at risk.

ATTENTION

As soon as the valve begins to audibly vent, the discharging screw must not be further turned until the venting is complete!

If it continues to be turned, this will cause damage to the valve.

1. To vent, hold the nitrogen cylinder in a vertical position with the piston below. Carefully turn the discharging screw (⇨ RI, 4.7 Repair and tool kits) until the release of the nitrogen is audible.

2. Manually check the ventilation of the nitrogen cylinder by completely pushing in the piston. If this is not possible, turn in the discharging screw again.

If venting is not possible, this means that the nitrogen cylinder is defective and can no longer be repaired.

Proceed as described in ⇨ RI 5.1 Disposing of defective nitrogen cylinders.

4.2 Disassembly the nitrogen cylinder

4.2.1 SZ7066.1, SZ8066.1, SZ7080.1, SZ8080.1

WARNING

Danger of injury due to uncontrolled moving parts!

Before disassembly, make sure that the nitrogen cylinder is completely vented by inserting the piston.

Always wear safety goggles during all work carried out.

1. Manually chuck the nitrogen cylinder at the housing in a jaw chuck. When chucking, make sure that the nitrogen cylinder is not damaged or deformed by the clamping pressure.

2. Attach the appropriate base tool (⇨ RI, 4.7 Repair and tool kits) and fasten with the corresponding socket-head screw.

3. Turn the base tool counter-clockwise with a ring spanner or a torque spanner until the base tool can be removed together with the base.

4. Unclamp the nitrogen cylinder from the jaw chuck, remove the tool from the base.

5. Push the piston by hand in the direction of the base thread until the piston is clear and can be removed.

6. Check piston, housing and base for damages. Damaged parts are to be replaced by original STEINEL Normalien AG spare parts.

   Order the spare parts from STEINEL Normalien AG Sales.
   (⇨ STEINEL Normalien AG . Winkelstraße 7 . 78056 Villingen-Schwenningen
   Phone +49 7720 6928-918 . Fax +49 7720 6928-8918 . sales@steinel.com)

7. Manually chuck the nitrogen cylinder housing with DS-fixture (⇨ RI, 4.7 Repair and tool kits) upwards in the jaw chuck. Attach the DS-tool and turn counter-clockwise with a ring spanner or a torque spanner until the DS-fixture can be removed.

8. Unclamp the nitrogen cylinder from the jaw chuck, remove DS-tool from the DS-fixture.

9. With diameters 38, 50 and 63 mm, dispose of the entire removed DS-fixture. With all other diameters, the gas seal has to be removed from the housing with a screwdriver or another appropriate tool and then disposed of.

4.2.2 SZ8060.1, SZ8060.2

WARNING

Danger of injury due to uncontrolled moving parts!

Before disassembly, make sure that the nitrogen cylinder is completely vented by inserting the piston.

Always wear safety goggles during all work carried out.

1. Manually chuck the nitrogen cylinder at the housing in a jaw chuck. When chucking, make sure that the nitrogen cylinder is not damaged or deformed by the clamping pressure.

2. Attach the appropriate base tool (⇨ RI, 4.7 Repair and tool kits) and fasten with the corresponding socket-head screw.

3. Turn the base tool counter-clockwise with a ring spanner or a torque spanner until the base tool can be removed together with the base.

4. Unclamp the nitrogen cylinder from the jaw chuck, remove the tool from the base.

5. Push the piston by hand in the direction of the base thread until the piston is clear and can be removed.

6. Check piston, housing and base for damages. Damaged parts are to be replaced by original STEINEL Normalien AG spare parts.

   Order the spare parts from STEINEL Normalien AG Sales.
   (⇨ STEINEL Normalien AG . Winkelstraße 7 . 78056 Villingen-Schwenningen Phone +49 7720 6928-918 . Fax +49 7720 6928-8918 . sales@steinel.com)

7. Manually chuck the nitrogen cylinder at the housing in a jaw chuck. When chucking, make sure that the nitrogen cylinder is not damaged or deformed by the clamping pressure. Remove the scraper from the housing with a screwdriver or another appropriate tool and then dispose of it.

8. Remove the piston ring from the housing with a screwdriver or another appropriate tool and then dispose of it.

9. Remove the O-ring from the unscrewed base. Remove the piston guide ring from the piston. Thoroughly clean the parts and check once again for damage.

   Damaged parts are to be replaced by original STEINEL Normalien AG spare parts. Order the spare parts from STEINEL Normalien AG Sales.
   (⇨ STEINEL Normalien AG . Winkelstraße 7 . 78056 Villingen-Schwenningen Phone +49 7720 6928-918 . Fax +49 7720 6928-8918 . sales@steinel.com)

4.2.3 SZ8063.1, SZ8066.2, SZ7066.2, SZ8080.2, SZ7080.2, SZ8065.2 to Ø 32

WARNING

Danger of injury due to uncontrolled moving parts!

Before disassembly, make sure that the nitrogen cylinder is completely vented by inserting the piston.

Always wear safety goggles during all work carried out.

1. Manually chuck the nitrogen cylinder at the housing in a jaw chuck. When chucking, make sure that the nitrogen cylinder is not damaged or deformed by the clamping pressure.

2. Attach the appropriate base tool (⇨ RI, 4.7 Repair and tool kits) and fasten with the corresponding socket-head screw.

3. Turn the base tool counter-clockwise with a ring spanner or a torque spanner until the base tool can be removed together with the base.

4. Unclamp the nitrogen cylinder from the jaw chuck, remove the tool from the base.

5. Push the piston by hand in the direction of the base thread until the piston is clear and can be removed.

6. Check piston, housing and base for damages. Damaged parts are to be replaced by original STEINEL Normalien AG spare parts.

   Order the spare parts from STEINEL Normalien AG Sales.
   (⇨ STEINEL Normalien AG . Winkelstraße 7 . 78056 Villingen-Schwenningen
   Phone +49 7720 6928-918 . Fax +49 7720 6928-8918 . sales@steinel.com)

7. Manually chuck the nitrogen cylinder at the housing in a jaw chuck. When chucking, make sure that the nitrogen cylinder is not damaged or deformed by the clamping pressure. Remove the scraper from the housing with a screwdriver or another appropriate tool and then dispose of it.

8. Remove the piston ring from the housing with a screwdriver or another appropriate tool and then dispose of it.

9. Remove the back ring.

10. Remove the seal.

11. Remove the O-ring from the unscrewed base. Remove the piston guide ring from the piston. Thoroughly clean the parts and check once again for damage. Damaged parts are to be replaced by original STEINEL Normalien AG spare parts.

    Order the spare parts from STEINEL Normalien AG Sales.
    (⇨ STEINEL Normalien AG . Winkelstraße 7 . 78056 Villingen-Schwenningen
    Phone +49 7720 6928-918 . Fax +49 7720 6928-8918 . sales@steinel.com)

4.2.4 SZ8065.1, SZ8065.2 from Ø 38

WARNING

Danger of injury due to uncontrolled moving parts!

Before disassembly, make sure that the nitrogen cylinder is completely vented by inserting the piston.

Always wear safety goggles during all work carried out.

1. Manually chuck the nitrogen cylinder at the housing in a jaw chuck. When chucking, make sure that the nitrogen cylinder is not damaged or deformed by the clamping pressure.

2. Attach the appropriate base tool (⇨ RI, 4.7 Repair and tool kits) and fasten with the corresponding socket-head screw.

3. Turn the base tool counter-clockwise with a ring spanner or a torque spanner until the base tool can be removed together with the base.

4. Unclamp the nitrogen cylinder from the jaw chuck, remove the tool from the base.

5. Push the piston by hand in the direction of the base thread until the piston is clear and can be removed.

6. Check piston, housing and base for damages. Damaged parts are to be replaced by original STEINEL Normalien AG spare parts.

   Order the spare parts from STEINEL Normalien AG Sales.
   (⇨ STEINEL Normalien AG . Winkelstraße 7 . 78056 Villingen-Schwenningen Phone +49 7720 6928-918 . Fax +49 7720 6928-8918 . sales@steinel.com)

7. Manually chuck the nitrogen cylinder housing with DS-fixture (⇨ RI, 4.7 Repair and tool kits) in the jaw chuck. Attach the DS-tool and turn counter-clockwise with a ring spanner or a torque spanner until the DS-fixture can be removed.

8. Unclamp the nitrogen cylinder from the jaw chuck, remove DS-tool from the DS-fixture.

9. Completely dispose of the removed DS-fixture. Then remove the gas seal from the housing with a screwdriver or another appropriate tool and also dispose of it.

4.3 Replacing seal set and assembly

4.3.1 SZ7066.1, SZ8066.1, SZ7080.1, SZ8080.1

ATTENTION

Before assembly, clean all used parts thoroughly with a soft, lint-free cloth.

The parts must be free from oil, grease, chippings and other dirt particles.

1. Open the repair kit for the nitrogen cylinder that is to be repaired and remove its parts (⇨ RI, 4.7 Repair and tool kits).

2. Manually chuck the nitrogen cylinder at the housing in a jaw chuck. When chucking, make sure that the nitrogen cylinder is not damaged or deformed by the clamping pressure.

   For diameters of 19, 25, 32, 75 and 95 mm, first lightly moisten the recess of the gas seal with oil and then insert the gas seal into the housing. The V groove of the gas seal must be facing downwards.

3. Check the correct fit.

4. Now, with all models, sparingly moisten the threads of the DS-fixture with the included screw locking fluid.

5. Tighten the DS-fixture with a DS-tool and a torque spanner (⇨ RI, 4.8 Screw-in torque). Immediately remove the superfluous liquid thread lock!

6. Clip the piston guide ring in the intended groove on the piston.

7. Lightly moisten the gas seal and cylinder bore with oil. Carefully insert the pre-assembled piston into the housing and press in with force.

8. Manually chuck the housing in a jaw chuck. When chucking, make sure that the nitrogen cylinder is not damaged or deformed by the clamping pressure. After this, press in the piston with force.

   For this process, the use of a mechanical toggle-lever press is recommended.

9. Press the piston in the piston bore against the fixed stop with a screwdriver.

10. Insert the included O-ring into the cleaned groove of the base and make sure it fits correctly.

11. Prior to screwing in the O-ring, moisten it with a little oil.

12. Fill the inside space of the nitrogen cylinder with the required amount of oil from the plastic bottle (⇨ RI, 4.9 Filling tables, oil).

13. Sparingly moisten the thread of the base with the included screw locking fluid.

14. Insert the base into the housing and screw in by hand until the resistance of the O-ring becomes noticeable.

15. Attach the appropriate tool to the base and fasten it with the corresponding socket-head screw. (⇨ RI, 4.7 Repair and tool kits).

16. Tighten the base with a tool and torque spanner (⇨ RI, 4.8 Screw-in torque).

17. Pull the piston forward with the discharging screw against the fixed stop of the housing.

4.3.2 SZ8060.1, SZ8060.2

ATTENTION

Before assembly, clean all used parts thoroughly with a soft, lint-free cloth.

The parts must be free from oil, grease, chippings and other dirt particles.

1. Open the repair kit for the nitrogen cylinder that is to be repaired and remove its parts (⇨ RI, 4.7 Repair and tool kits).

2. Manually chuck the nitrogen cylinder at the housing in a jaw chuck. When chucking, make sure that the nitrogen cylinder is not damaged or deformed by the clamping pressure.

   All housing grooves are oiled slightly with the special oil (bottle with the red cap) that is included in the repair kit. The remaining oil still needs to be used for assembly!

   Then clip the piston ring into the lower groove of the housing.

3. Push the scraper into the upper groove of the housing. Make sure that the scraper lip points outwards.

4. During the installation of the piston ring and the scraper, make sure that they are set correctly in the intended grooves.

5. With the back ring pointing downwards, push the gas seal to a stop on the bottom side of the piston. Insert the second piston ring in the intended groove of the piston.

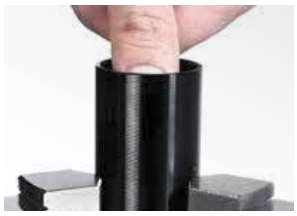
6. Check the correct fit of gas seal and piston ring.

7. Use a little oil from the included plastic bottle and put it in the upper guide bore of the housing.

8. Insert the included O-ring into the cleaned groove of the base and make sure it fits correctly.

9. Prior to screwing in the O-ring, moisten it with a little oil.

10. Moisten the gas seal with oil. Carefully insert the pre-assembled piston into the housing and press in with force. When moving the gas seal over the thread, make sure that the gas seal is not damaged.



11. Manually chuck the housing in a jaw chuck. When chucking, make sure that the nitrogen cylinder is not damaged or deformed by the clamping pressure. After inserting the piston into the housing, push the piston all the way in by hand.

    For this process, the use of a mechanical toggle-lever press is recommended.

12. Press the piston in the piston bore against the fixed stop with a screwdriver.

13. Fill the inside space of the nitrogen cylinder with the required amount of oil from the plastic bottle (⇨ RI, 4.9 Filling tables, oil).

14. Sparingly moisten the thread of the base with the included screw locking fluid.

15. Insert the base into the housing and screw in by hand until the resistance of the O-ring becomes noticeable.

16. Attach the appropriate tool to the base and fasten it with the corresponding socket-head screw (⇨ RI, 4.7 Repair and tool kits).

17. Tighten the base with a tool and torque spanner (⇨ RI, 4.8 Screw-in torque).

18. Pull the piston forward with the discharging screw against the fixed stop of the housing.

4.3.3 SZ8063.1, SZ8066.2, SZ7066.2, SZ8080.2, SZ7080.2, SZ8065.2 to Ø 32

ATTENTION

Before assembly, clean all used parts thoroughly with a soft, lint-free cloth.

The parts must be free from oil, grease, chippings and other dirt particles.

1. Open the repair kit for the nitrogen cylinder that is to be repaired and remove its parts (⇨ RI, 4.7 Repair and tool kits).

2. First, lightly moisten all housing grooves with oil. Insert the grey gas seal into the lowest groove of the housing. The V groove of the gas seal must be facing downwards.

3. Hold the slitted back ring so that the gating points face upwards. Insert the back ring with an end starting at the gas seal. The ends of the inserted back ring must be flush and not overlap.

4. Then clip the piston ring into the middle groove of the housing.

5. Push the scraper into the upper groove of the housing. Make sure that the scraper lip points outwards.

6. During the installation of the piston ring, the seal and the scraper, make sure that they are set correctly in the intended grooves.

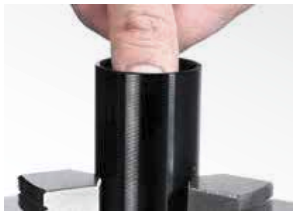
7. Fit the piston ring onto the piston so that the rounded side faces the piston rod.

8. Put a little bit of oil from the included bottle into the upper guidance area of the housing. When the housing is upside-down, the oil will spread evenly. Keep the thread of the housing oil-free.

9. Insert the included O-ring into the cleaned groove of the base and make sure it fits correctly.

10. Prior to screwing in the O-ring, moisten it with a little oil. Keep the thread oil-free.

11. Carefully insert the pre-assembled piston into the housing and press in with force. Make sure that the piston ring is not damaged or shifted by the thread in the housing.



12. Manually chuck the housing in a jaw chuck. When chucking, make sure that the nitrogen cylinder is not damaged or deformed by the clamping pressure. After inserting the piston into the housing, push the piston all the way in by hand.

    For this process, the use of a mechanical toggle-lever press is recommended.

13. Press the piston in the piston bore against the fixed stop with a screwdriver.

14. Fill the inside space of the nitrogen cylinder with the required amount of oil from the plastic bottle (⇨ RI, 4.9 Filling tables, oil).

15. Sparingly moisten the thread of the base with the included screw locking fluid.

16. Insert the base into the housing and screw in by hand until the resistance of the O-ring becomes noticeable.

17. Attach the appropriate tool to the base and fasten it with the corresponding socket-head screw (⇨ RI, 4.7 Repair and tool kits).

18. Tighten the base with a tool and torque spanner (⇨ RI, 4.8 Screw-in torque).

19. Pull the piston forward with the discharging screw or a suitable socket-head screw against the fixed stop of the housing.

4.3.4 SZ8065.1, SZ8065.2 from Ø 38

ATTENTION

Before assembly, clean all used parts thoroughly with a soft, lint-free cloth.

The parts must be free from oil, grease, chippings and other dirt particles.

1. Open the repair kit for the nitrogen cylinder that is to be repaired and remove its parts (⇨ RI, 4.7 Repair and tool kits).

2. Manually chuck the nitrogen cylinder at the housing in a jaw chuck. When chucking, make sure that the nitrogen cylinder is not damaged or deformed by the clamping pressure.

   Lightly moisten the recess of the gas seal with oil and then insert the gas seal into the housing.

3. Make sure the gas seal fits correctly.

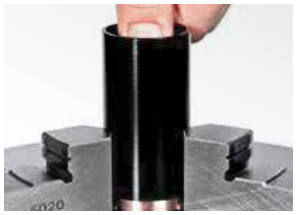
4. Sparingly moisten the thread of the DS-fixture with the included screw locking fluid.

5. Tighten the DS-fixture with a tool (⇨ RI, 4.7 Repair and tool kits) and a torque spanner (⇨ RI, 4.8 Screw-in torque).

6. Clip the piston guide ring in the intended groove on the piston.

7. Manually chuck the housing in a jaw chuck. When chucking, make sure that the nitrogen cylinder is not damaged or deformed by the clamping pressure. After inserting the piston into the housing, push the piston all the way in by hand.

   For this process, the use of a mechanical toggle-lever press is recommended.



8. After inserting the piston into the housing, push the piston all the way in by hand.

9. Press the piston in the piston bore against the fixed stop with a screwdriver.

10. Insert the included O-ring into the cleaned groove of the base and make sure it fits correctly.

11. Prior to screwing in the O-ring, moisten it with a little oil. Keep the thread oil-free.

12. Fill the inside space of the nitrogen cylinder with the required amount of oil from the plastic bottle (⇨ RI, 4.9 Filling tables, oil).

13. Sparingly moisten the thread of the base with the included screw locking fluid.

14. Insert the base into the housing and screw in by hand until the resistance of the O-ring becomes noticeable.

15. Attach the appropriate tool to the base and fasten it with the corresponding socket-head screw (⇨ RI, 4.7 Repair and tool kits).

16. Tighten the base with a tool (⇨ RI, 4.7 Repair and tool kits) and a torque spanner (⇨ RI, 4.8 Screw-in torque).

17. Pull the piston rod forward with the discharging screw against the fixed stop of the housing.

4.4 Replacement of the burst screw and assembly

4.4.1 All series

ATTENTION

The burst screw constitutes a safety-relevant part. Replacement or assembly may only be carried out by authorised personnel.

ATTENTION

Triggered function: In the event of inadmissibly high pressure, there will be a reaction from the burst screw or it will be immediately destroyed and the system then forcibly relieved of pressure. Before replacement, the cause of the pressure increase must be determined and rectified.

Scratches or pressure marks on the burst disc surface will impair the proper functioning of the burst disc.

When the system has been filled, the burst disc of the burst screw will bulge outwards. New and unused burst screws have flat burst discs.

1. Remove the burst screw from the packaging immediately before installation and then install it directly. The new burst screw must be clean and undamaged.

2. Moisten the copper ring of the burst screw with oil.

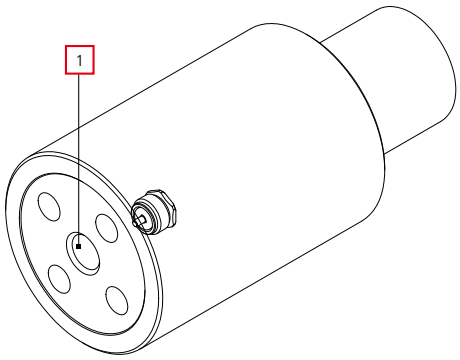
3. During installation with the hexagonal part of the tool insert, do not touch the surface of the burst disc.

4.4.2 Technical data of the burst screw

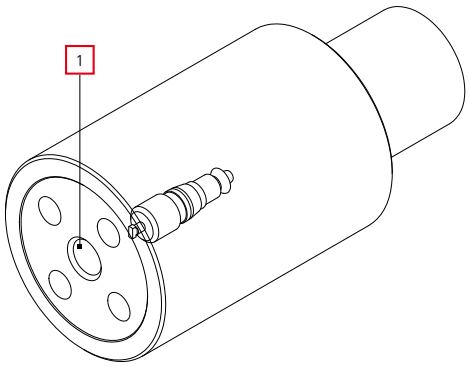
Nitrogen cylinders	Burst pressure bar	Key width mm	Depth mm	Torque NM	Item number
Ø32 and Ø38	350	3	4	5	SZ7087 **06350**
	380	3	4	5	SZ7087 **06380**
	430	3	4	5	SZ7087 **06430**
	450	3	4	5	SZ7087 **06450**
	470	3	4	5	SZ7087 **06470**
	500	3	4	5	SZ7087 **06500**
ab Ø50	350	5	4,5	20	SZ7087 **12350**
	380	5	4,5	20	SZ7087 **12380**
	430	5	4,5	20	SZ7087 **12430**
	450	5	4,5	20	SZ7087 **12450**
	470	5	4,5	20	SZ7087 **12470**
	500	5	4,5	20	SZ7087 **12500**
	600	5	4,5	20	SZ7087 **12600**

4.5 Filling the nitrogen cylinder

1 filling and venting connection



valve cannot be dismantled



valve can be dismantled as a single part

4.5.1 SZ7066.1, SZ7066.2, SZ7080.1, SZ7080.2, SZ8060.1, SZ8060.2, SZ8063.1, SZ8065.1, SZ8065.2, SZ8066.1, SZ8066.2, SZ8080.1, SZ8080.2

ATTENTION

Only use nitrogen N_2 (class 2.8) for filling! Pay attention to the filling pressure specifications (⇨ *RI, 4.6 Nitrogen filling pressure table*). With nitrogen cylinders with a higher filling pressure, use appropriate nitrogen bottles (Manufacturer's recommendation: 300 bar nitrogen bottles).

1. Chuck filling unit (part number SZ80855-1) into a vice.

2. Connect the charging tubing to the nitrogen bottle pressure reducer.

3. Connect the charging tubing to the filling unit. The filling unit entry valve must be closed!

4. Carefully open nitrogen bottle. Be mindful of leakages. Set the filling pressure of the nitrogen cylinders with the pressure reducer.

5. Slowly open the filling unit entry valve until the predetermined filling pressure has been reached. Then close that valve. Prior to unscrewing the nitrogen cylinder, release the pressure out of the filling unit through the ventilation valve on the side.

6. Following a functionality and tightness test, the nitrogen cylinder can be used in the tool again.

   To check the tightness, place the nitrogen cylinder in a water bath. For the functionality test, STEINEL Normalien AG provides a force measuring device. (⇨ STEINEL Normalien AG . Winkelstraße 7 . 78056 Villingen-Schwenningen Phone +49 7720 6928-918 . Fax +49 7720 6928-8918 . sales@steinel.com)

4.6 Nitrogen filling pressure table

	SZ7066.1 SZ7080.1	SZ7066.2 SZ7080.2	SZ8060.1 SZ8060.2	SZ8063.1	SZ8065.1	SZ8065.2	SZ8066.1 SZ8080.1	SZ8066.2 SZ8080.2
Nominal diameter mm	**Filling pressure bar**							
Ø 19	191	158	–	179	191	158	128	105
Ø 25	195	195	157	195	196	196	129	129
Ø 32	196	196	155	196	197	196	137	137
Ø 38	197	197	162	197	205	205	131	131
Ø 50	212	212	159	212	209	209	141	141
Ø 63	196	176	153	176	189	189	147	132
Ø 75	189	189	142	189	203	203	157	157
Ø 95	189	210	158	210	182	182	151	168
Ø 120	–	–	141	–	–	–	147	147

Tolerance filling -10%

4.7 Repair and tool kits

4.7.1 Assembly tools

Nominal diameter mm	For all series	Only for SZ8065.1 SZ8065.2 from Ø 38	Only for SZ8066.1, SZ7066.1 SZ8080.1, SZ7080.1
Ø 19	SZ8000 **WKZ019**	SZ8000 **WKZ8065DS19**	SZ8000 **WKZ8066DS19**
Ø 25	SZ8000 **WKZ025**	SZ8000 **WKZ8065DS25**	SZ8000 **WKZ8066DS25**
Ø 32	SZ8000 **WKZ032**	SZ8000 **WKZ8065DS32**	SZ8000 **WKZ8066DS32**
Ø 38	SZ8000 **WKZ038**	SZ8000 **WKZ8065DS38**	SZ8000 **WKZ8066DS38**
Ø 50	SZ8000 **WKZ050**	SZ8000 **WKZ8065DS50**	SZ8000 **WKZ8066DS50**
Ø 63	SZ8000 **WKZ063**	SZ8000 **WKZ8065DS63**	SZ8000 **WKZ8066DS63**
Ø 75	SZ8000 **WKZ075**	SZ8000 **WKZ8065DS75**	SZ8000 **WKZ8066DS75**
Ø 95	SZ8000 **WKZ095**	SZ8000 **WKZ8065DS95**	SZ8000 **WKZ8066DS95**
Ø 120	SZ8000 **WKZ120**	–	–
	To assemble/disassemble the screwed-on base	To assemble/disassemble the DS fixture	

4.7.2 Discharging screw and charging adapter

Nominal diameter mm	Discharging screw for all series	Discharging screw for all series with VG5 valve	Charging adapter	Seal for charging adapter
ØM6	SZ7046.3	–	SZ704521	K100-000-0464
ØM8	SZ7046.4	SZ704614	SZ704522	K100-000-0534
ØM10	SZ7046.5	SZ704615	SZ704523	K100-000-0534
ØM12	SZ7046.6	SZ704616	SZ704524	K100-000-0535
ØG1/8"	SZ7046.7	SZ704617	SZ704525	K100-000-0536
	To empty the nitrogen cylinder prior to disassembly		Suitable for filling unit SZ8085.4 of control set SZ8085.8 and SZ8085.9	

Nitrogen cylinder fill thread identical to the nominal diameter of the discharging screw or charging adapter

4.7.3 Repair kits

Nominal diameter mm	SZ8060.2	SZ8063.1 SZ8066.2.019 to SZ8066.2.095 SZ7066.2.019 to SZ7066.2.095 SZ8080.2.019 to SZ8080.2.095 SZ7080.2.019 to SZ7080.2.095 SZ8065.2.019 to SZ8065.2.032	SZ8065.1 SZ8065.2 from Ø 38	SZ8066.1 SZ8066.2.120 SZ7066.1 SZ8080.1 SZ8080.2.120 SZ7080.1
Ø 19	–	SZ8000 **REP002019**	SZ8000 **REP003019**	SZ8000 **REP004019**
Ø 25	SZ8000 **REP001025**	SZ8000 **REP002025**	SZ8000 **REP003025**	SZ8000 **REP004025**
Ø 32	SZ8000 **REP001032**	SZ8000 **REP002032**	SZ8000 **REP003032**	SZ8000 **REP004032**
Ø 38	SZ8000 **REP001038**	SZ8000 **REP002038**	SZ8000 **REP003038**	SZ8000 **REP004038**
Ø 50	SZ8000 **REP001050**	SZ8000 **REP002050**	SZ8000 **REP003050**	SZ8000 **REP004050**
Ø 63	SZ8000 **REP001063**	SZ8000 **REP002063**	SZ8000 **REP003063**	SZ8000 **REP004063**
Ø 75	SZ8000 **REP001075**	SZ8000 **REP002075**	SZ8000 **REP003075**	SZ8000 **REP004075**
Ø 95	SZ8000 **REP001095**	SZ8000 **REP002095**	SZ8000 **REP003095**	SZ8000 **REP004095**
Ø 120	SZ8000 **REP001120**	–	–	SZ8000 **REP002120**
Consisting of	Repair instructions Scraper Piston seal Rod guide Piston guide Lock ring O-ring, base Screw locking High-performance oil		Repair instructions DS-fixture, complete Rod seal Piston guide O-ring base Screw locking High-performance oil	

4.8 Screw-in torque

For all series	Nominal diameter in mm								
	Ø 19	Ø 25	Ø 32	Ø 38	Ø 50	Ø 63	Ø 75	Ø 95	Ø 120
	Screw-in torque in Nm								
Base	20	30	30	40	80	100	120	120	120
DS-fixture	5	20	30	30	40	50	60	70	–

Tolerance +/-10%

4.9 Filling tables, oil

4.9.1 SZ7066.1, SZ8066.1, SZ7080.1, SZ8080.1

Stroke	Diameter in mm								
	Ø 19	Ø 25	Ø 32	Ø 38	Ø 50	Ø 63	Ø 75	Ø 95	Ø 120
	Oil amounts in ml (cm³)								
10	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.6	0.9
15	0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.8	1.3
25	0.1	0.1	0.2	0.2	0.4	0.6	0.9	1.3	2.2
38	0.1	0.2	0.3	0.3	0.6	1.0	1.3	2.0	3.3
50	0.1	0.2	0.3	0.4	0.7	1.2	1.7	2.6	4.4
63	0.2	0.2	0.4	0.5	0.9	1.5	2.1	3.2	5.5
80	0.2	0.3	0.5	0.6	1.2	1.9	2.7	4.1	7.0
100	0.2	0.3	0.6	0.8	1.4	2.4	3.4	5.1	8.7
125	0.3	0.4	0.7	0.9	1.8	3.0	4.2	6.3	10.9
160	0.3	0.5	0.9	1.2	2.3	3.8	5.4	8.1	13.9
200	0.4	0.6	1.1	1.5	2.8	4.8	6.7	10.1	17.4

4.9.2 SZ8060.1, SZ8060.2

Stroke	Diameter in mm							
	Ø 25	Ø 32	Ø 38	Ø 50	Ø 63	Ø 75	Ø 95	Ø 120
	Oil amounts in ml (cm³)							
10	0.1	0.1	0.1	0.3	0.5	0.7	1.0	1.9
15	0.1	0.1	0.2	0.5	0.75	1.1	1.6	2.9
25	0.14	0.2	0.3	0.7	1.3	1.8	2.8	4.7
50	0.25	0.3	0.5	1.5	2.5	3.7	5.8	9.4

4.9.3 SZ8063.1, SZ71066.2, SZ8066.2, SZ7080.2, SZ8080.2, SZ8065 to Ø 32

Stroke	Diameter in mm							
	Ø 19	Ø 25	Ø 32	Ø 38	Ø 50	Ø 63	Ø 75	Ø 95
	Oil amounts in ml (cm³)							
5	0.1	0.1	0.1	1.2	1.4	0.2	0.2	0.3
7	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.4
10	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.5
13	–	–	0.1	0.2	0.3	0.3	–	–
15	0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.8
16	–	–	0.1	0.2	0.3	0.4	0.5	0.8
19	0.1	0.1	0.2	0.2	0.3	0.5	0.6	1.0
25	0.1	0.1	0.2	0.3	0.4	0.6	0.8	1.2
32	0.1	0.2	0.2	0.3	0.5	0.8	1.0	1.6
38	0.1	0.2	0.3	0.4	0.6	0.9	1.2	1.9
50	0.2	0.2	0.3	0.5	0.8	1.2	1.6	2.4
63	0.2	0.3	0.4	0.6	1.0	1.4	2.0	3.1
75	0.2	0.3	0.5	0.7	1.1	1.7	2.4	3.6
80	0.2	0.3	0.5	0.7	1.2	1.8	2.5	3.9
100	0.3	0.4	0.6	0.9	1.5	2.3	3.2	4.8
125	0.3	0.5	0.8	1.1	1.9	2.8	3.9	6.0

4.9.4 SZ8065.1, SZ8065.2 from Ø 38

Stroke	Diameter in mm								
	Ø 19	Ø 25	Ø 32	Ø 38	Ø 50	Ø 63	Ø 75	Ø 95	Ø 120
	Oil amounts in ml (cm³)								
10	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.6	0.9
15	0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.9	1.3
25	0.1	0.1	0.2	0.3	0.4	0.6	0.8	1.4	2.2
38	0.1	0.2	0.2	0.4	0.6	0.9	1.2	2.2	3.3
50	0.1	0.2	0.3	0.5	0.7	1.2	1.6	2.8	4.4
63	0.2	0.2	0.4	0.6	0.9	1.4	2.0	3.5	5.5
80	0.2	0.3	0.4	0.7	1.2	1.8	2.5	4.5	7.0

The information regarding oil amounts is valid for the initial filling as well as repairs for all nitrogen cylinder models (V; B, VB; VZ; PD with a composite system and standard nitrogen cylinder).

4.9.5 Specification and material safety data sheet of the lubricating oil

As manufacturer of the nitrogen cylinders, we recommend following version of lubricating oil:

- SZ9852.5 5ml
- SZ9852.6 50 ml

The material safety data sheet can be accessed via the following link:
www.steinel.com » Service » Data sheets

5 Disposal

5.1 Disposing of defective nitrogen cylinders

WARNING

Danger of injury due to uncontrolled moving parts!

Always wear safety goggles during all work carried out.

While drilling and venting, do not place your head directly over the cylinder.

Make sure that no other people are put at risk.

1. Chuck the nitrogen cylinder in a jaw chuck.

2. Drill the housing of the nitrogen cylinder for venting at the centre using a spiral drill (bore diameter approx. 4 mm).

3. Then dispose of the nitrogen cylinder.

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