STEINEL®

Operating instructions

for the SZ8085 control set

(English translation of the original German text)

Responsible for content

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Operating instructions for the SZ8085 control set

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

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1 Introduction

1.1 Preface

Dear technical supervisor,

You are facing the task of filling the nitrogen systems using the STEINEL control set. The STEINEL control set is used for filling, the variable pressure setting of and for checking the gas pressure in various nitrogen systems. These operating instructions will assist you in performing this responsible job.

Please read these operating instructions carefully and pay particular 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 operating instructions solely apply to the control set accessories as they are described here and as they were developed and built by the manufacturer.

Storage
These operating instructions must be kept accessible so that they are available to the operator at any time.

1.3 Scope of supply

The following components are included in the scope of supply for the SZ8085 control set*(⇨ OI, 3 Control set components)*:

- Base body
- Discharging screws
- Charging adapter
- Charging tubing
- A pressure reducer, valve key and transition adapter are all optionally available with the expanded SZ8085.9 control set.

1.4 Obligations of the personnel

Only trained specialist personnel may be tasked with working with the control set *(⇨ OI, 2.5 Authorised personnel)*. Before starting work, you are obligated to observe basic regulations concerning occupational safety and accident prevention.

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 operating instructions!
- In addition to this documentation, observe general, legal and otherwise binding regulations regarding occupational safety and accident prevention as well as environmental protection!
- Take note of all ways in which you can report and fight fires and educate yourself about the location and operation of fire extinguishers!

- Always wear personal protective equipment as described in the relevant safety instructions when working with the control set. Working with the control set without personal protective equipment is not permitted.
- 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!
- When a safety threat occurs, immediately disconnect the control set from the power supply, prevent it from starting again and notify the supervisor in charge and/or the safety representative right away!
- Do not carry out any constructional changes without the expressed written consent of the manufacturer!
- Make sure that persons who do not work with the control set (and therefore do not know the remaining risks associated with the control set) cannot enter the danger area.

1.5 Warranty and liability

For the use of the control set, 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 and inspection
- non-observance of the notes contained in these operating instructions regarding safety, putting into service, operation, maintenance and inspection
- unauthorised structural alterations
- insufficient monitoring and maintenance
- external elements or force majeure
- performance of maintenance work (repairs)

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

1.6 Symbols in these operating instructions

1.6.1 Danger warning levels

Various signal words and colours are used depending on the level of risk.

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.

1.6.2 Danger symbols

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

Warning of hazardous or irritant substances

Warning of explosive substances

Warning of hand injuries

Warning of hot surface

1.6.3 Prohibiting symbols

Unauthorised access prohibited

Reaching in prohibited

1.6.4 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: *(⇨ OI, 2 Safety)*

This means: Refer to operating 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

The following notices serve to recognise and avoid dangers in order to ensure a handling of the control set that is as safe as possible when using it.

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

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

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

2.2 Wearing parts

Filling adapters are used for the filling of self-sufficient nitrogen cylinders in order to adapt the various connecting threads.

These filling adapters are particularly prone to wear and other specific stresses if the correct filling process is not adhered to. As such issues cannot be ruled out, the filling adapters must be checked for damage before each filling process.

Furthermore, these adapters, as well as the M8 standard nipples fitted in the base body, must always be replaced after 100 filling processes or in the event of damage.

Other components of the control set must be checked regularly for wear or damage, and replaced if so required.

Non-observance may void the guarantee or warranty. In addition, STEINEL Normalien AG is not liable for damage caused by improperly maintained/replaced materials!

2.3 Danger from hidden hazards/remaining risks

WARNING

When working with the control set, severe and unpredictable remaining risks generally exist and can only be counteracted with systematic work planning, working with an awareness of dangers, experience, etc.!

The following list is meant to bring some of these dangers to your attention.

- **If the filling adapters or M8 standard nipples are subjected to lateral, impact or bending loads, the adapters may become damaged and malfunction.**

➔ **Be sure to wear appropriate personal protective equipment for all tasks!**

➔ **Therefore perform all tasks with the utmost diligence!**

WARNING

Danger of injury due to improper operation of nitrogen systems!

➔ **Before the nitrogen systems are filled, their safe condition with regard to accidents and operation is to be checked by suitably qualified personnel.**

➔ **The nitrogen systems may only be operated by expert, authorised and appropriately trained personnel.**

2.4 Application

The STEINEL control set is used for filling, the variable pressure setting of and for checking the gas pressure in various nitrogen systems.

- Self-sufficient nitrogen cylinders
- Tube connected nitrogen cylinders*
- Composite plates*
- Manifold plates*

* As long as the controls are readily accessible, it is possible with these systems to adjust the pressure while they are in operation.

2.5 Authorised personnel

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

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.

2.6 Personal protective equipment

When working on the entire system, always wear the personal protective equipment (PPE) stipulated by the owner. Always keep your PPE in a safe condition.

Always wear safety goggles, safety gloves and protective footwear during all work carried out.

When changing the manifold cylinder, a safety mask must also be worn.

When releasing the nitrogen, ear protection must also be worn.

A helmet must also be worn when putting the system into service, as well as during assembly and disassembly work.

Observe all safety instructions found in the respective operating instructions for nitrogen systems.

3.1 Control set

Please find information on the control set and individual components in our current product catalogue under:

www.steinel.com » Downloads » Catalogue » Nitrogen systems

Position	Designation	SZ8085.8	SZ8085.9
1	Base body	✓	✓
2	Discharging screw	✓	✓
3	Charging adapter	✓	✓
4	Charging tubing	✓	✓
5	Pressure reducer	–	✓
6	Valve key	–	✓
7	Transition adapter	–	✓

3.2 Components

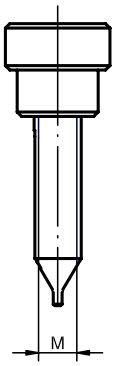
3.2.1 Base body

The base body is used for filling the nitrogen cylinder

1 Quick-fit connector
2 Connection
3 Outlet valve
4 Regulating valve
5 Manometer

Part number
SZ8085.5

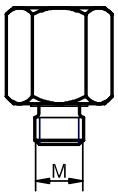
3.2.2 Discharging screw



The discharging screw is used to empty the nitrogen cylinder before filling

M	Part number
M4	SZ7046 **2**
M6	SZ7046 **3**
M8	SZ7046 **4**
M10	SZ7046 **5**
M12	SZ7046 **6**
G1/8	SZ7046 **7**

3.2.3 Charging adapter

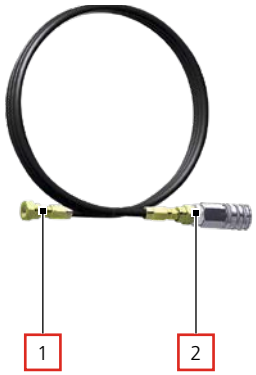


The charging adapter is used for the connection of the base body and nitrogen cylinder.

M	Use of the nitrogen cylinder	Part number
M6	SZ7066.1.019-032 SZ8063.1.032 SZ8065.1.019-032 SZ8066.1.019-032	SZ7045 **21**
M8	all .2 nitrogen cylinder 019-038	SZ7045 **22**
M10	SZ8063.1.050 all .2 nitrogen cylinder 050-063	SZ7045 **23**
M12	SZ8063.1.063-095 all .2 nitrogen cylinder 075-120	SZ7045 **24**
G1/8	all .2 nitrogen cylinder V, VB	SZ7045 **25**

3.2.4 Charging tubing

The charging tubing connects the pressure reducer to the base body.



1 Connecting thread M12 x 1.5

2 Quick coupling sleeve

Part number
SZ8085.4

3.2.5 Pressure reducer

The pressure reducer is the fitting for the nitrogen bottle.

1.1 Connection for nitrogen bottle 300 bar W30 x 2

1.2 Connection for nitrogen bottle 200 bar W24 x 1/14"

2 Manometer for cylinder pressure

3 Manometer for filling pressure

4 Regulating valve

5 Connection for charging tubing M12 x 1.5

6 Pressure adjustment valve for filling pressure

Part number
SZ8085.6

3.2.6 Valve key

The valve key is used for the assembly/disassembly of the changeable valves.

Part number
K100-000-0300

3.2.7 Transition adapter

The transition adapter is required for a predecessor system. The adapter is used for connecting the charging tubing to the filling system.

Part number
SZ7045.9

4.1 Filling the nitrogen cylinder

DANGER

Charging tubing may be put under pressure.

➔ **During the end coupling of the charging tubing via the quick coupling, ensure that the coupling is fixed by hand. The pressure at the end coupling immediately escapes with a loud bang.**

DANGER

When filling the nitrogen cylinder with nitrogen, the pistons can extend suddenly.

➔ **During the filling process, slowly increase the pressure in order to prevent sudden extension.**

➔ **Maintain a sufficient distance and do not reach into the piston's movement space.**

ATTENTION

Only use nitrogen N_2 (class 2.8) for filling! Be mindful of filling pressure specifications (⇨ *OI, 4.2 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 the base body into a vice.

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

3. Connect the charging tubing to the quick-fit connector on the base body. First close the control set regulating valve, and then the outlet valve.

4. Close the regulating valve at the pressure reducer and turn the pressure adjustment valve for filling pressure back to minimum. Carefully open the nitrogen bottle. The cylinder pressure and the nitrogen cylinder filling pressure can be read on the manometers. Set the nitrogen cylinder filling pressure using the pressure adjustment valve for filling pressure.

5. Open the regulating valve on the base body. Open the regulating valve on the pressure reducer. The nitrogen cylinder will then be filled with the set filling pressure. This pressure can be read on the base body's manometer.

   When the filling pressure has been reached, close the regulating valve on the base body and then open the outlet valve.

   ➔ After opening, the residual pressure will escape from the base body and the filled nitrogen cylinder can then be unscrewed.

6. For other nitrogen cylinders that have to be filled with the same pressure, repeat step 5.

7. Following a functionality and tightness test, the nitrogen cylinders can be used again.

8. For the tightness test, **STEINEL Normalien AG** provides a force measuring device. *(⇨ STEINEL Normalien AG . Winkelstraße 7 . 78056 Villingen-Schwenningen sales@steinel.com)*

9. The nitrogen bottle will be closed if no additional springs are filled. Then, open the outlet and regulating valve on the base body, as well as the regulating valve on the pressure reducer, in order to release the residual pressure. The charging tubing can now be removed in a depressurised state.

4.2 Nitrogen filling pressure table

WARNING

The pressure values specified in this table correspond to the maximum filling pressures. Only the specified filling pressure may be used during filling. A higher filling may lead to damage or malfunctioning, and is prohibited for safety reasons.

The relevant filling pressure is specified on the respective nitrogen cylinder and must be obtained from there *(see labelling on the nitrogen cylinder)*.

	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%

5 Filling of the manifold plate, composite tube and composite plate system

5.1 Safety instructions

DANGER

When filling the manifold plate, tube composite or composite plate system with nitrogen, the pistons can extend suddenly. This can cause severe injuries or damage to the superordinate machine!

- ➔ **During the filling process, slowly increase the pressure in order to prevent sudden extension.**
- ➔ **Do not stand or linger directly at the plate, nor reach into the piston's movement space.**

5.2 Filling of the manifold plate, tube composite and composite plate system

DANGER

Charging tubing may be put under pressure.

- ➔ **During the end coupling of the charging tubing via the quick coupling, ensure that the coupling is fixed by hand. The pressure at the end coupling immediately escapes with a loud bang.**

Fill the plate via the control panel and according to the identification plate. With regard to the composite systems, the permissible nitrogen cylinder filling pressure with the lowest pressure is decisive for the filling.

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

2. Shut the regulating valve at the control panel.

3. Connect the hose at the control panel.

5 Filling of the manifold plate, composite tube and composite plate system

4. Close the regulating valve at the pressure reducer and turn the pressure adjustment valve for filling pressure back to minimum. Carefully open the nitrogen bottle. The cylinder pressure and the plate/composite system filling pressure can be read on the manometers. Set the plate/system filling pressure using the pressure adjustment valve for filling pressure.

5. Open the regulating valve on the pressure reducer. The filling pressure can now be read on the control panel manometer.

6. When the desired filling pressure has been reached, close the regulating valve on the pressure reducer. The charging tubing can now be decoupled at the control panel.

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