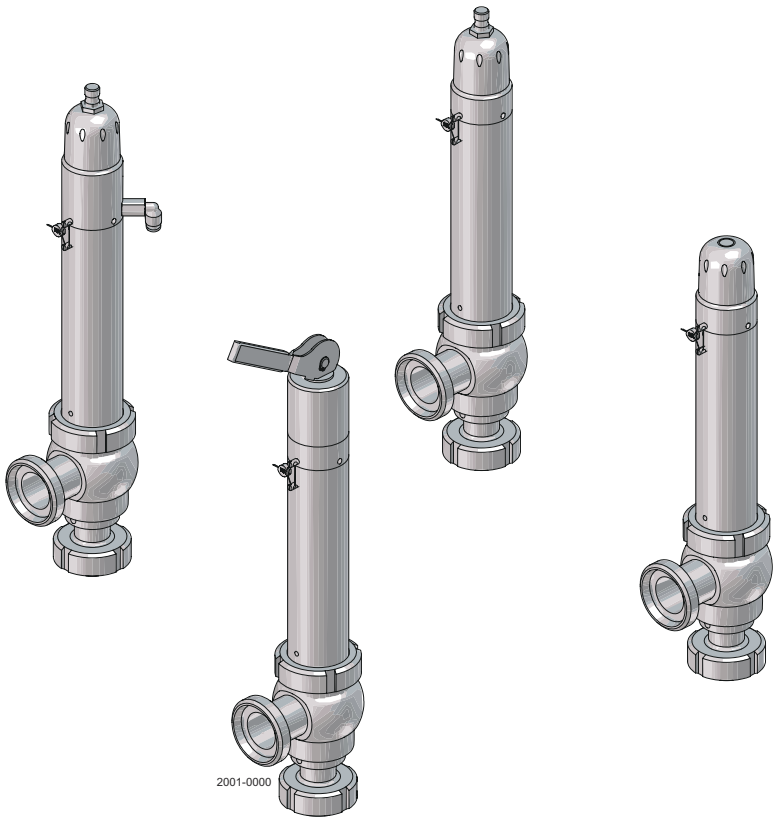
Alfa Laval Safety Valve

Safety valves



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Instruction Manual

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1 Declarations of Conformity

1.1 EU Declaration of Conformity

The designated company

Alfa Laval Kolding A/S, Albuen 31, DK-6000 Kolding, Denmark, +45 79 32 22 00

Company name, address and phone number

Hereby declare that

Safety Valve

Designation

6357

Type

Serial number from AAB000000001 to AAB999999999

is in conformity with the following directives with amendments:

- Machinery Directive 2006/42/EC
- Pressure Equipment Directive (PED) 2014/68/EU

The person authorised to compile the technical file is the signer of this document.

Vice President BU Hygienic Fluid Handling Head of Product Management	Mikkel Nordkvist
Title	Name
Kolding, Denmark	2024–04–01
Place	Date (YYYY-MM-DD)
	
	Signature

DoC Revison_ 01_032024 / This Declaration of Conformity replaces Declaration of Conformity dated 2022-10-01

1.2 UK Declaration of Conformity

The designated company

Alfa Laval Kolding A/S, Albuen 31, DK-6000 Kolding, Denmark, +45 79 32 22 00

Company name, address and phone number

Hereby declare that

Safety Valve

Designation

6357

Type

Serial number from AAB000000001 to AAB999999999

is in conformity with the following directives with amendments:

- The Supply of Machinery (Safety) Regulations 2008
- The Pressure Equipment (Safety) Regulations 2016

Signed on behalf of: Alfa Laval Kolding A/S.

Vice President BU Hygienic Fluid Handling Head of Product Management	Mikkel Nordkvist
Title	Name
Kolding, Denmark	2024–04–01
Place	Date (YYYY-MM-DD)

DoC Revison_ 02_032024

2 Safety

Read this first

This Instruction Manual is designed for operators and service engineers working with the supplied Alfa Laval product.

Operators must read and understand the ***Safety, Installation and Operating*** instructions of the supplied Alfa Laval product before carrying out any work or before you put the supplied Alfa Laval product into service!

Not following the instructions can result in serious accidents.

This documentation describes the authorized way to use the supplied Alfa Laval product. Alfa Laval will take no responsibility for injury or damage if the equipment is used in any other way.

This Instruction Manual is designed to provide the user with the information to perform tasks safely for all phases in the lifetime of the supplied Alfa Laval product.

The operator shall always read the chapter ***Safety*** first. Hereafter the operator can skip to the relevant section for the task to be carried out or for the information needed.

Always read the chapter ***Technical Data*** thoroughly.

This is the complete Instruction Manual for the supplied Alfa Laval product.

NOTE

The illustrations and specifications in this Instruction Manual were effective at the date of printing. However, as continuous improvements are our policy, we reserve the right to alter or modify the Instruction Manual without prior notice or any obligation.

The English version of the Instruction Manual is the original manual. Alfa Laval cannot be held responsible for incorrect translations. In case of doubt, the English version applies.

2.1 Safety Signs

Mandatory Action Signs

	General mandatory action sign.
	Refer to instruction manual.
	Use eye protection - safety glasses.
	Use protective hand wear - safety gloves.
	Wear protective equipment - safety helmet.
	Use ear protection in noisy environments - noise protector.
	Wear protective equipment - safety shoes.

Warning Signs

	General warning.
	Transportation with forklift truck or other industrial vehicles if heavy.
	Hot surface and burning danger.
	Cutting danger.
	Corrosive substance.

	Crushing of hands.
	Danger of injury Do **not** attempt to disassemble the actuator due to spring under load danger!

2.2 Safety Precautions

All warnings in the Instruction Manual are summarised on these pages. Pay special attention to the instructions below so that severe personal injury and/or damage to the supplied Alfa Laval product is avoided.

General

	To prevent unexpected start and contact with electrical live and moving parts. **Always** disconnect the power supply safely: • The power supply disconnecting device must be disconnected (in off position) and locked.

Transportation and Lifting

	**Never** lift or elevate in any way other than described in this manual. **Always** use the original packaging or similar during transportation. **Always** ensure that personnel must have experience with lifting operations. **Always** ensure that all connections are disconnected before attempting to remove the valve from the installation. **Always** ensure that no leakage of lubricants can occur. **Always** drain liquid out of the valves before transportation. **Always** ensure sufficient fixing of the valve during transportation - if specially designed packaging material is available, it must be used. **Always** ensure that compressed air is released.
	**Always** use designated lifting points if defined. Ensure that the lifting equipment is suitable for the supplied Alfa Laval product. **Always** ensure that the unit is securely fixed during transportation. **Always** ensure the lifting point to be in line with center of gravity. Adjust lifting point if necessary. **Always** use suitable transport device ie. forklift or pallet lifter. **Always** use appropriate lifting equipment for heavy parts when relevant. Use lifting logs when available. **Always** keep an eye on the load and stay clear during the lifting operation.

Installation

	If the local safety regulations prescribe that the installation has to be inspected and approved by responsible authorities before the valve is put into service, consult with such authorities before installing the equipment and have the projected installation approved by them. **Always** release compressed air after use. **Always** assemble the valve completely before startup and make sure everything is in place and correctly tightened.
	**Always** ensure that the valve and pipelines are depressurized, emptied, and cooled down to ambient temperature before installation, inspection, assembly, or dismantling of the valve.
	**Never** work on the valve or touch moving parts if the actuator is supplied with compressed air. Do **NOT** attempt to disassemble or by other means open the actuator due to spring under load danger!

Operation

	Always read ***Technical Data*** thoroughly. **Never** operate the valve unless a correct installation has been verified. **Never** cover or in any way restrict the valve, the valve must be able to work unobstructed at all time.
	**Never** touch the valve or pipelines when hot.
	**Always** rinse well with clean water after cleaning. **Always** handle lye and acid with great care. **Always** follow the instructions in the safety data sheets from the suppliers of cleaning agents, detergents, oils etc.
	**Never** touch moving parts of the valve during operation. **Never** dismantle the valve during operation or when pressurized. **Always** release compressed air after use. **Never** touch the moving parts if the actuator is supplied with compressed air.

Maintenance

In order to optimise the operation of the supplied Alfa Laval product and to minimize the down time due repair activities, the maintenance includes:

- Inspection and maintenance of the supplied Alfa Laval product: strictly follow the technical documentation
- **Preventive maintenance:** visual inspection of the supplied Alfa Laval product followed by necessary adjustments and planned periodic replacement of wear and tear parts
- **Repairs:** unscheduled break down of a component, often causing the system to stop. Damaged components must be replaced
- **Stock of Alfa Laval genuine spare parts:** Alfa Laval recommend keeping a stock of genuine spare parts facilitating preventive maintenance and reducing downtime in case of unplanned break downs

Always release compressed air after use.

Always ensure that the valve and pipelines are depressurized, emptied, and cooled down to ambient temperature before dismantling the valve.

Never stick your fingers through the valve ports if the actuator is supplied with compressed air.

Never work on the valve or touch moving parts if the actuator is supplied with compressed air.

Do **NOT** attempt to disassemble or by other means open the actuator due to spring under load danger!

Never pressurize the valve/actuator when the valve is serviced **unless specifically prescribed.**

Storage

Alfa Laval recommend:

- Store the supplied Alfa Laval product as supplied in original packaging
- Port opening(s) should be protected against any ingress
- Store in a clean, dry place without direct sunlight or UV light
- Temperature range -5 °C to +40 °C (23 °F - 104 °F)
- Relative humidity less than 60%
- No exposure to corrosive substances (including contained air)

Noise

Under certain operating conditions, the supplied Alfa Laval product and/or the systems in which they are installed can produce high sound pressure levels. Appropriate noise protection measures should be taken when necessary and in accordance with local legislation.

Hazards

Burn Hazard

- Lubrication oil, machine parts and various machine surfaces can be hot and cause burns. Wear protective gloves

Corrosive Hazard

- Always handle cleaning liquids, lye and acid with great care and in accordance with separate instructions for those fluids
- When using chemical cleaning agents and lubricants, make sure you follow the general rules and suppliers recommendation regarding ventilation, personnel protection etc.

Cut Hazard

- Sharp edges, especially on bowl discs and threads, can cause cuts. Wear protective gloves

Crushing Hazard

- Avoid placing hands into valve orifice pinch points

Safety check

A visual inspection of any protective device (shield, guard, cover or other) on the supplied Alfa Laval product shall be carried out at least every 12 months. If the protective device is lost or damaged, especially when this leads to deterioration of safety performance, it shall be replaced. The fixing of the protective device should only be replaced with fixings of the same or an equivalent type.

Inspection acceptance criteria:

- It should not be possible to reach moving parts originally protected by a protective device
- The protective device must be securely mounted
- Ensure that screws for the protective device are securely tightened

Procedure in case of non-acceptance:

- Fix and/or replace the protective device

2.3 Warning Signs in Text

Pay attention to the safety instructions in this Instruction Manual.

Below are definitions of the four grades of warning signs used in the text where there is a risk for injury to personnel or damage to the supplied Alfa Laval product.

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate damage to the supplied Alfa Laval product.

NOTE

Indicates important information to simplify or clarify procedures.

2.4 Requirements of Personnel

Operators

The operators shall read and understand this Instruction Manual.

Maintenance personnel

The maintenance personnel shall read and understand this Instruction Manual. The maintenance personnel or technicians shall be skilled within the field required to carry out the maintenance work safely.

Trainees

Trainees can perform tasks under the supervision of an experienced employee.

People in general

The public shall not have access to the supplied Alfa Laval product.

In some cases, specially skilled personnel may need to be hired (i.e. electricians, welders). In some cases the personnel has to be certified according to local regulations with experience of similar types of work.

2.5 Recycling Information

Unpacking

Packing material may consist of wood, plastics, cardboard boxes and in some cases metal straps.

	• Wood and cardboard boxes can be reused, recycled or used for energy recovery • Plastics should be recycled or burnt at a licensed waste incineration plant • Metal straps should be sent for material recycling

Maintenance

During maintenance, oil (if used) and wear parts in the supplied Alfa Laval product should be replaced.

- Oil and all non-metal wear parts must be disposed of in accordance with local regulations
- Rubber and plastics should be burnt at a licensed waste incineration plant. If not available they should be disposed of in accordance with local regulations
- Bearings and other metal parts should be sent to a licensed handler for material recycling
- Seal rings and friction linings should be disposed of to a licensed land fill site. Check your local regulations
- All metal parts should be sent for material recycling
- Worn out or defected electronic parts should be sent to a licensed handler for material recycling

Scrapping

At end of use, the equipment must be recycled in accordance with the relevant local regulations. Besides the equipment itself, any hazardous residues from the process liquid must be considered and dealt with in a proper manner. When in doubt, or in the absence of local regulations, please contact your local Alfa Laval sales company.

How to contact Alfa Laval

Contact details for all countries are continually updated on our website.

Please visit *www.alfalaval.com* to access the information directly.

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3 Introduction

The Alfa Laval Safety Valve is a versatile hygienic spring-loaded relief valve that prevents pressure buildup in process tanks, vessels and equipment due to blocked discharge, thermal expansion, chemical reactions, or a combination of these events.

3.1 General Description

The Alfa Laval Safety Valve is a spring loaded safety valve used to prevent overpressures in tanks and vessels in the dairy, food and beverage, and biopharm industries to reliably avoid damages to human beings and equipment. It is used to prevent inadmissible over pressures of fluids in tanks, containers and plant sections.

From the factory the valve is configured with a set pressure upon request that is greater than the operating pressure. The valve opens against a spring force if the operating pressure increases the set pressure. Preferably, the Alfa Laval Safety Valve should be installed vertically.

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4 Installation

4.1 Unpacking/delivery

CAUTION

Alfa Laval cannot be held responsible for incorrect unpacking.

Check the delivery:

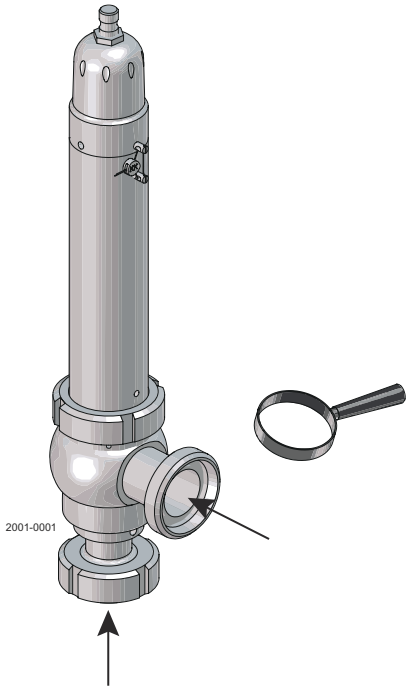
1. Complete valve.
2. Delivery note.

1

a) Clean the valve of possible packing materials.

b) Inspect the valve for visible transport damage.

c) Avoid damaging air and pipe connections.



4.2 General installation

NOTE

Always read the technical data thoroughly. See *Technical Data* on page 39

CAUTION

Alfa Laval cannot be held responsible for incorrect installation.

WARNING

Always release compressed air after use.

Avoid stressing the valve as this can cause deformation of the sealing area and malfunction of the valve (leakage or faulty indication).

Pay special attention to:

- Vibrations
- Thermal expansion of the tubes
- Excessive welding
- Overloading of the pipelines

Fittings

Ensure that the connections are tight.

Air connection of actuator

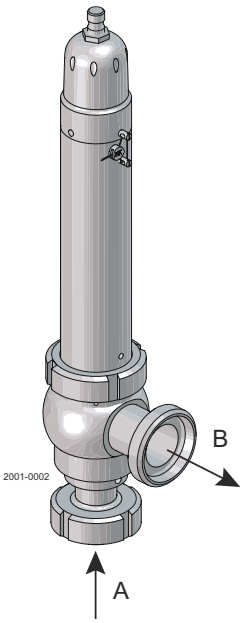
Connect compressed air correctly.

Pay special attention to warnings!

Preferably, the safety valve should be installed vertically on connection "A".

If mounted horizontal the set pressure will be a bit lower than specified due to the missing weight of the piston. Highest effect on DN80 and DN100. Safety valves with a set pressure of ≤ 0.5 bar are generally installed vertically.

The valve should be installed so that no fluids remain in the housing. External dynamic effects caused by installation must be avoided.



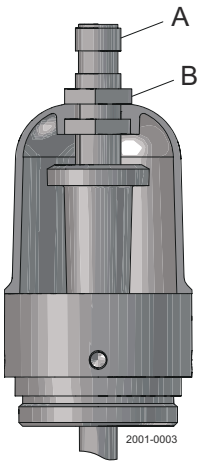
4.3 Indication and control equipment (optional extras)

CAUTION

The indication and control equipment must be electrically installed by authorised personnel only.

Inductive proximity switches

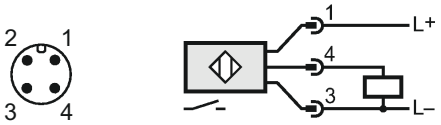
It is recommended to adjust the sensor (A) so it will give feedback when the valve is closed. Lock the sensor with the nut (B).



Sensor data

Type:	Inductive IFT200
Thread (A):	M12x1
Electrical design:	DC PNP
Operating voltage[V]:	10...36 DC
Output function:	Normally open

Connection cables - see “Automation/accessories” in our “Close at hand” catalogue.



Function

In closed position the sensor is adjusted to give a feedback signal.

When piston raises up the sensor dips into the sleeve and loses the feedback signal.

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5 Operation

5.1 Operation

NOTE

Always read the technical data thoroughly. (See *Technical Data* on page 39)

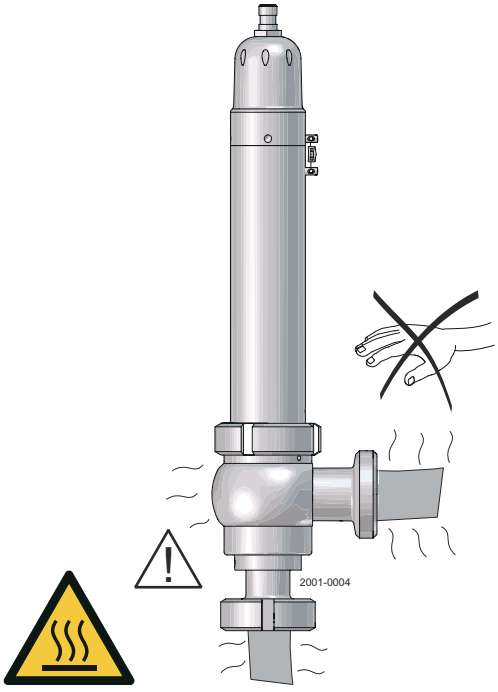
CAUTION

Alfa Laval cannot be held responsible for incorrect operation.

WARNING

Never touch the valve or the pipelines when processing hot liquids or when sterilising.

DANGER **Burn hazard!**



The safety valve is used to prevent inadmissible overpressure of fluid media in tanks, containers and plant sections. Generally, the set pressure is greater than the operating pressure.

The valve is sprung open if the operating pressure increases and reaches the set pressure.

In the case of a pressure increase, the flow rate is kept constant depending on the max. permissible operating pressure.

5.2 Fault-finding

NOTE

Study the maintenance instructions carefully before replacing worn parts - see *General maintenance* on page 29.

Pay attention to possible break-down.

Study the instructions carefully.

Problem	Cause/result	Repair
Internal leakage	Worn O-rings	Replace the O-rings
External leakage	Worn flange O-rings Worn stem sealing unit	Replace all seals
Valve cannot be activated (pneumatic)	Air pressure too low. Incorrect elastomer material (swelling)	Check and correct air pressure Select another elastomer-sealing material grade

5.3 Recommended Cleaning

NOTE

The supplied product is designed for cleaning in place (CIP).

NaOH = Caustic soda.

HNO_3 = Nitric acid.

The cleaning agents must be stored/disposed of in accordance with current regulations/directives.

CAUTION

Never touch the supplied product or the pipelines when sterilizing.

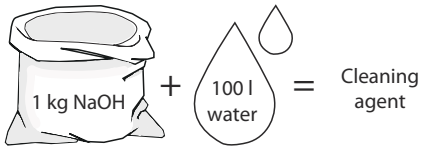
Always handle lye and acid with great care.

Examples of cleaning agents

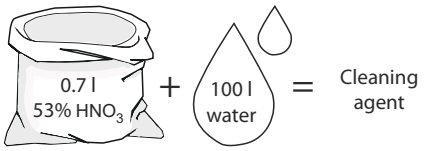
Use clean water free from chlorides

Metric System

1. 1% by weight NaOH at 70°C

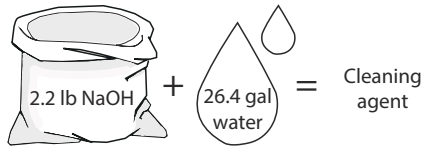


2. 0.5% by weight HNO_3 at 70°C

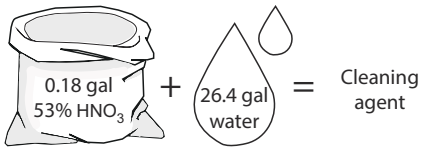


Imperial System

1. 1% by weight NaOH at 158°F



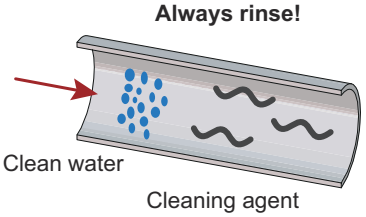
2. 0.5% by weight HNO_3 at 158°F



1. Avoid excessive concentration of the cleaning agent ⇒ **Dose gradually!**
2. Adjust the cleaning flow to the process **Milk sterilization/viscous liquids ⇒ Increase the cleaning flow!**

CAUTION

Always rinse well with clean water after the cleaning.



5.3.1 Optimum cleaning during the cleaning cycle

To secure optimum cleaning of the cavity between valve during the cleaning cycle, please follow the recommendations below.

Standard version:

It is not possible to clean the valve inside the valve cavity.

Pneumatic version:

Supply air to the air connection when cleaning the valve.

Manual override version:

Turn the handle 180 degrees when cleaning the valve.

6 Maintenance

6.1 General maintenance

NOTE

Always read the technical data thoroughly. See *Technical Data* on page 39

All scrap must be stored/discharged in accordance with current rules/directives.

WARNING

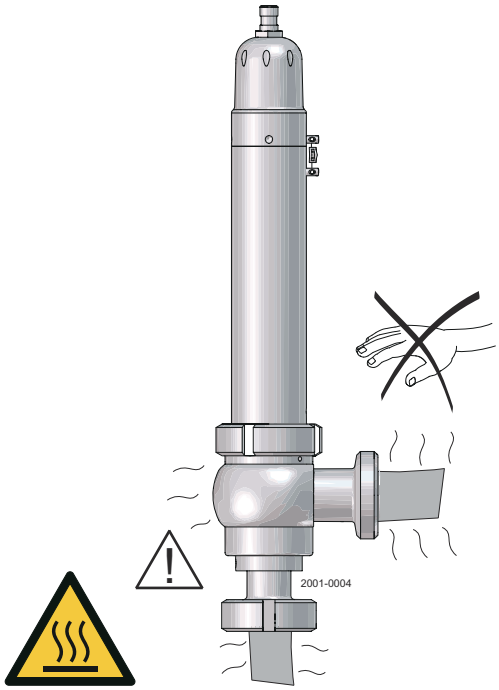
Always release compressed air after use.

Never service the valve when it is hot.

Never stick your fingers through the valve ports if the actuator is supplied with compressed air.

DANGER **Burn hazard!**

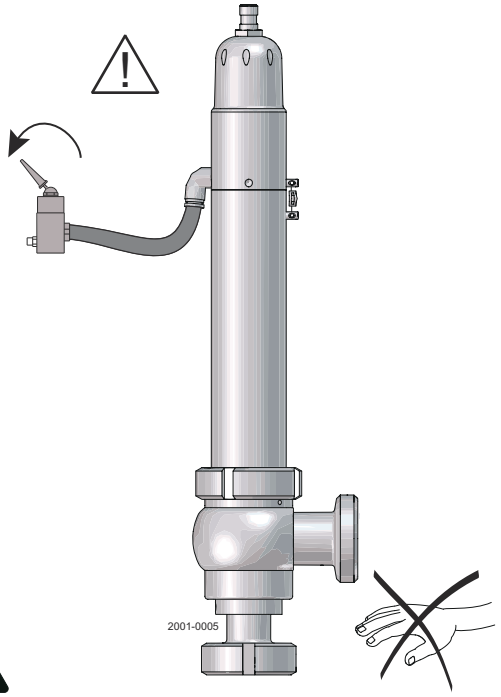
Never service the valve when it is hot.



DANGER **Cutting hazard!**

Atmospheric pressure required! The valve/actuator and the pipelines must **never** be pressurised when servicing the valve/actuator.

Never stick your fingers through the valve ports if the actuator is supplied with compressed air.



The maintenance intervals depend on the operating conditions.

- Temperature and temperature intervals
- Product and cleaning medium
- Pressure and opening frequency

Lubrication recommendation

Material	Lubricant
EPDM, Viton, NBR, HNBR	Klüber Paraliq GTE703[1]
Silicone	Klüber Sintheso pro AA2[1]
Thread	Interflon Food[2]

[1] It is only permitted to use approved lubricants if the respective fitting is used for the production of food or drink. Please observe the relevant safety data sheets of the manufacturers of lubricants.

[2] It is only permitted to use approved lubricants if the respective fitting is used for the production of food or drink. Please observe the relevant safety data sheets of the manufacturers of lubricants.

	Product wetted seals
Preventive maintenance	**Replace after 12 months**
Maintenance after leakage (leakage normally starts slowly)	**Replace at the end of the day**
Planned maintenance	• Regular inspection for leakage and smooth operation • Keep a record of the valve • Use the statistics for planning of inspections and future maintenance

6.2 Disassembly and assembly

> **NOTE**
>
> Study the instructions carefully.
>
> The items refer to the *Parts Lists and Exploded Views* on page 49.

6.2.1 DN25 - Replacement of product wetted seals

1

a) Remove electrical lines, sensor mounting and control air!

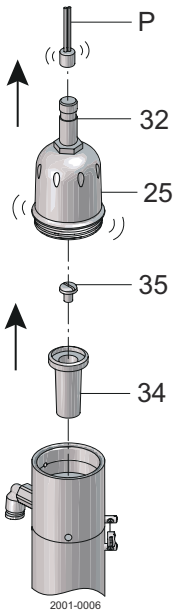
b) Unscrew the electrical lines (P) from sensor (32).

c) Unscrew hood (25).

d) Unscrew the screw (35) and remove the bracket (34).

For pneumatic version

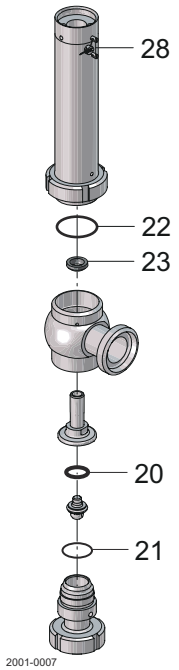
e) Dismantle the circlip (19) and remove the disc (18).



2

Without removing the sealing (28) and changing the set pressure the following seals are replaced:

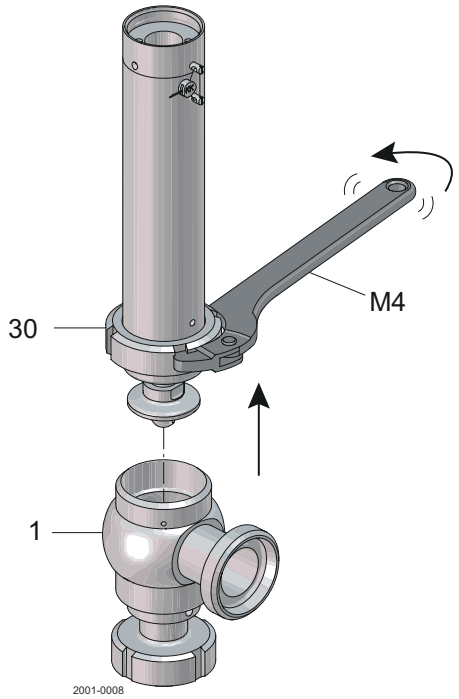
Shaft sealing (23), O-rings (20), (21) and (22).



3

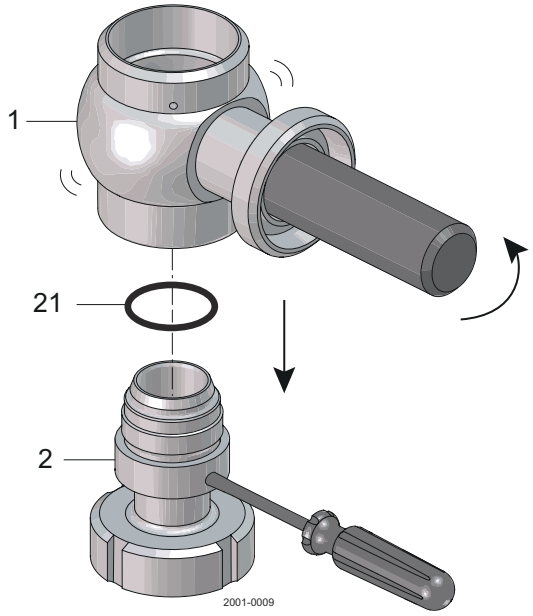
a) Unscrew the slotted nut (30) from the housing (1) with a hook wrench (M4).

b) Dismantle the complete valve insert from the housing (1).



4

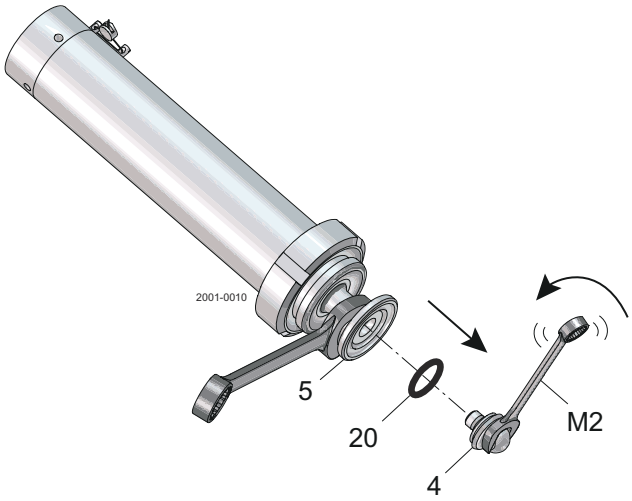
Unscrew the housing (1) from the screw in socket (2) and remove the O-ring (21).



5

a) Unscrew the piston plate (4) from the piston (5).

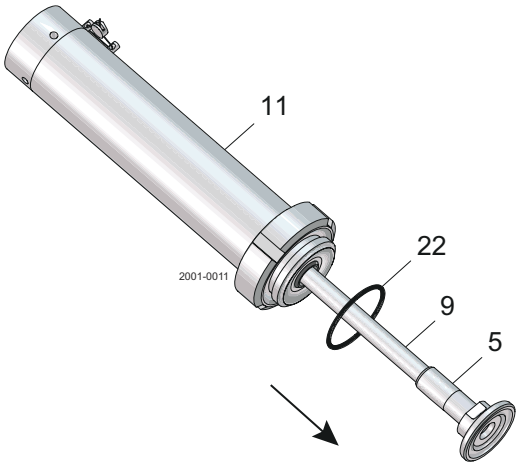
b) Remove O-ring (20).



6

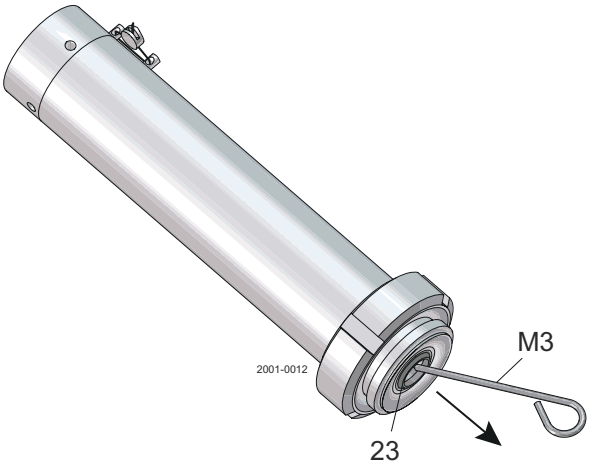
a) Remove the piston (5) and piston rod (9) axially out of the housing (11).

b) Remove O-ring (22).



7

Puncture the shaft sealing (23) at the centre with a pointed tool (M3) and remove it from the groove.



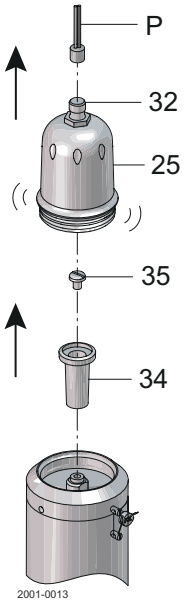
6.2.2 DN40–100 - Replacement of product wetted seals

1

a) Remove electrical lines, sensor mounting and control air.

b) Unscrew the electrical liner (P) from sensor (32).

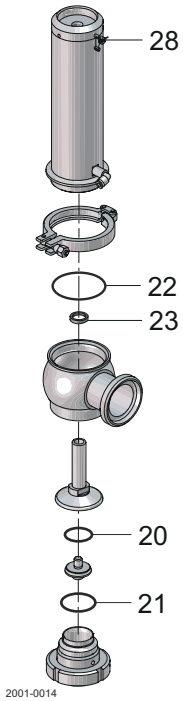
c) Unscrew the screw (35) and remove bracket (34).



2

Without removing the sealing (28) and changing the set pressure the following seals are replaced.

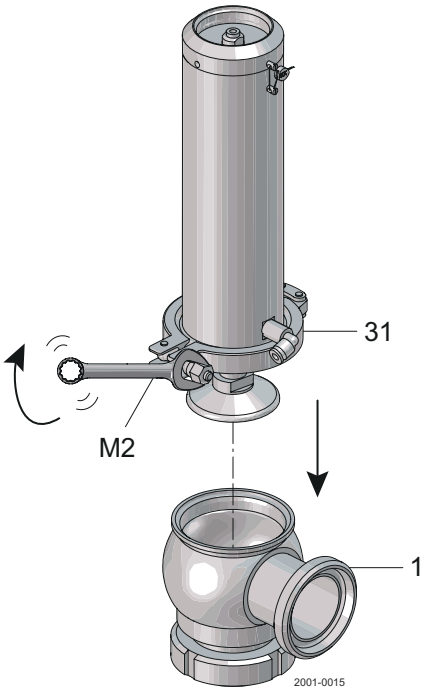
Shaft sealing (23), O-rings (20), (21) and (22).



3

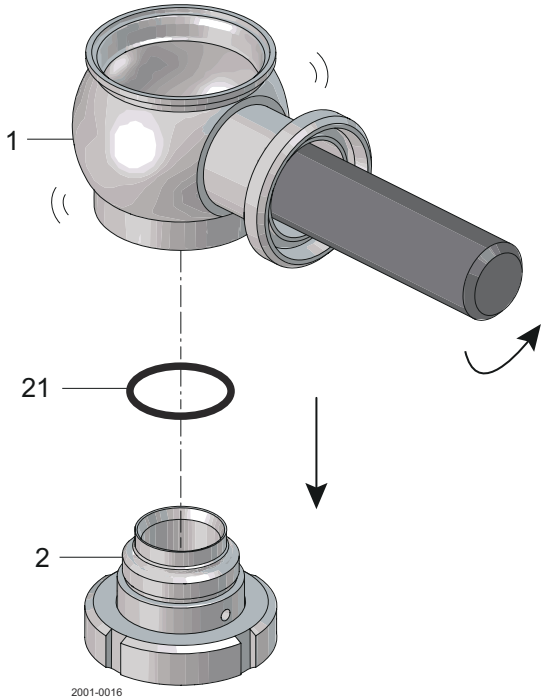
a) Unscrew the clamp coupling (31).

b) Dismantle the complete valve insert from the housing (1).



4

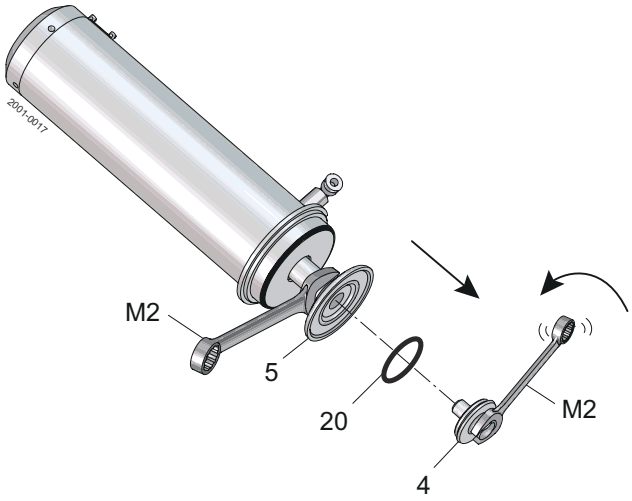
Unscrew housing (1) from the screw-in socket (2) and remove the O-rings (21).



5

a) Unscrew the piston plate (4) from the piston (5).

b) Remove O-ring (20).

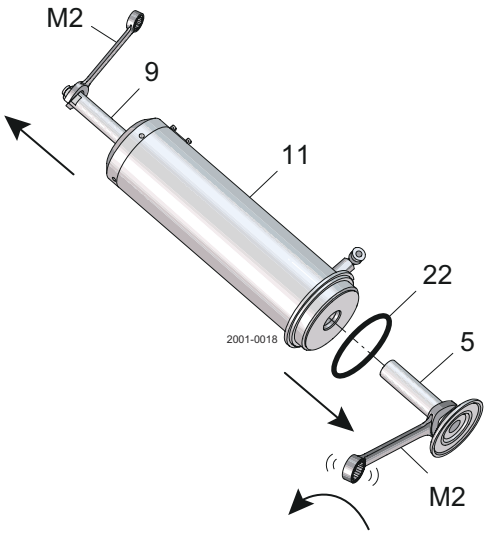


6

a) Unscrew the piston plate (5) from the piston rod (9).

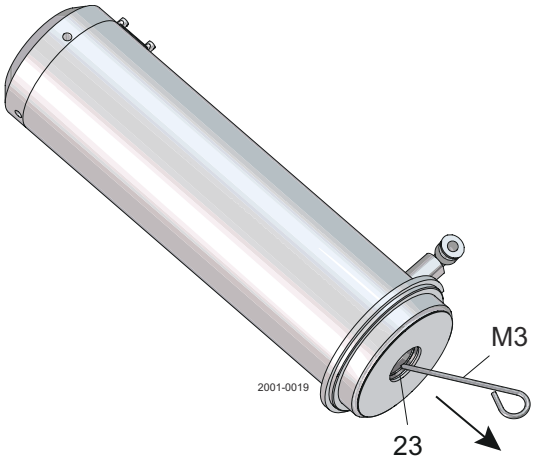
b) Remove the piston (5) and piston rod (9) axially out of the housing (11).

c) Remove O-ring (22).



7

Puncture the shaft sealing (23) at the centre with a pointed tool (M3) and remove it from the groove.



6.2.3 Disassembly - Manual lifting only

1

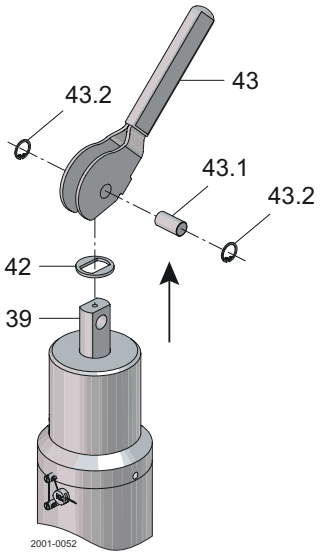
a) Dismantle the circlip (43.2) and remove the pin (43.1) from the lever (43).

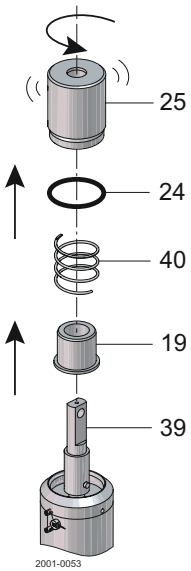
b) Pull off the lever (43) from the rod (39) and remove the disc (42).

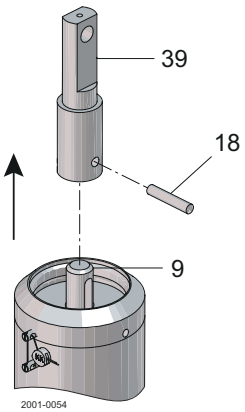
c) Unscrew the hood (25).

d) Remove O-ring (24), pressure spring (40) and spring guide (19).

e) Dismantle the pin (18) and remove the rod (39) from the piston (9).







7 Technical Data

> **NOTE**
>
> Technical data must be observed during installation, operation and maintenance.
>
> All personnel should be informed about the technical data.

7.1 Technical Data

Temperature	
Temperature range:	+4 °C to +95 °C

Valve	
Size	DN25-DN100
Connection option	Flange or clamp
Temperature ambient	+4 °C to +45 °C
Max. sterilisation temperature - dry steam, EPDM	+140 °C (SIP max. 30 min.)
Max. sterilisation temperature - dry steam, HNBR	+130 °C (SIP max. 30 min.)
Max. sterilisation temperature - dry steam, FKM	+140 °C (SIP max. 30 min.)

Actuator	
Operating air pressure	5.5-8.0 bar

7.2 Physical Data

Materials	
Product wetted parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
Seals:	EPDM
External finish:	Ra 1.5-2.5 µm
Internal finish:	Ra 0.8 µm
Connections:	Inlet: Liner/nut DIN 11851 Outlet: Male DIN 11851

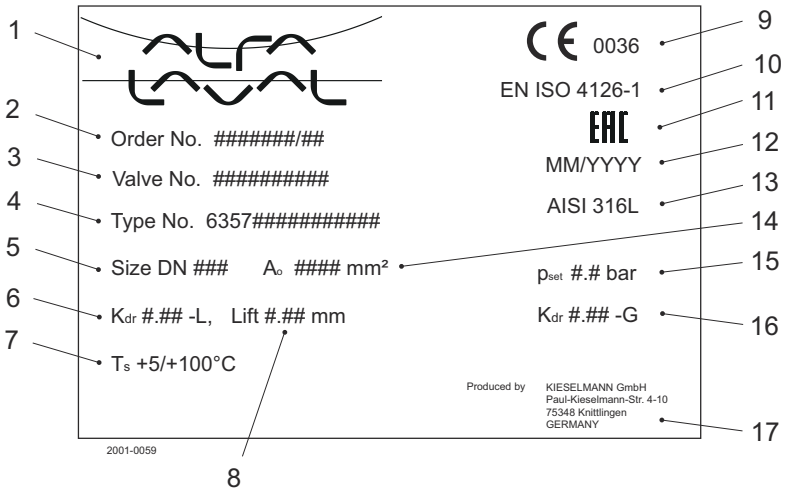
Option:

Inductive sensor for feedback is available for standard and pneumatic lifting.

7.3 Noise

	One metre / 3 ft away from and 1.6 metres / 5 ft above the exhaust, the noise level of a valve actuator will be approximately 77 dB(A) without noise damper and approximately 72 dB(A) with damper - measured at 7 bar air-pressure.

7.4 Identification



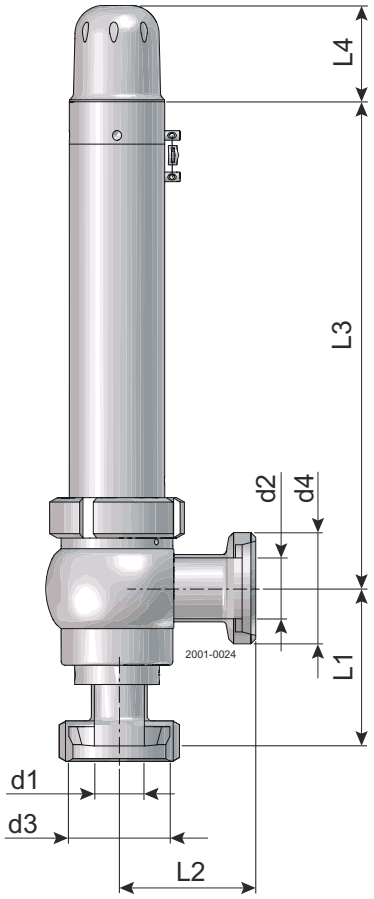
1. Logo
2. Order number
3. Valve number
4. Manufacturer number
5. Size
6. Coefficient of discharge (L = Liquid)
7. Temperature
8. Lift
9. CE-Designation (notified body)
10. Applicable standards
11. Approval according to EAC
12. Date of manufacture
13. Material
14. Narrowest flow area
15. Set pressure
16. Coefficient of discharge (G = gas)
17. Manufacturer

7.5 Setting range

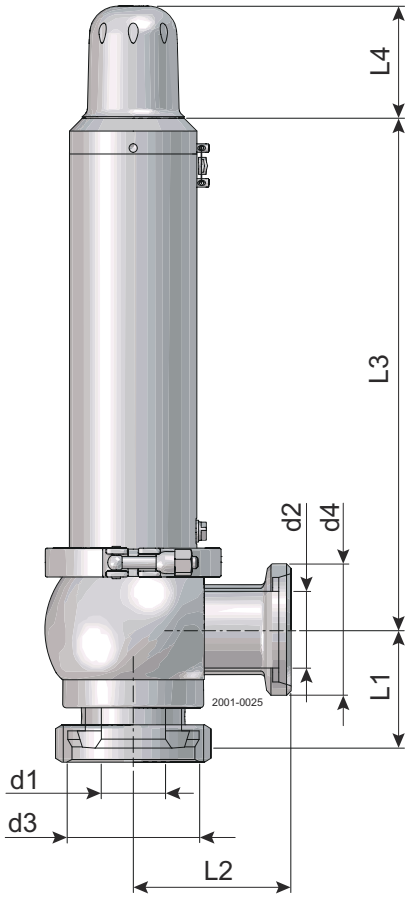
Nominal pipe size Seal: EPDM	Setting range [bar]	Narrowest flow area DO [mm]	Inlet d2 [mm]	Outlet d1 [mm]	α-value K_{dr} -L (liquid)	α-value K_{dr} -G (gas)
DN25	0.2-0.9	26	26	32	0.38	0.43
	1.0-1.5				0.41	0.43
	1.6-2.0				0.42	- [1]
	2.1-2.5				0.44	- [1]
	2.6-3.0				0.41	- [1]
	3.1-4.5				0.47	- [1]
	4.6-7.0				0.45	- [1]
	7.1-12.0				0.40	- [1]
DN40	0.2-1.0	32	32	38	0.50	0.55
	1.1-1.4				0.39	0.50
	1.5-2.4				0.46	0.50
	2.5-3.0				0.48	0.50
	3.1-4.4				0.38	0.43
	4.5-7.0				0.44	0.43
	7.1-12.0				0.35	0.30
DN50	0.2-0.9	38	38	50	0.55	0.55
	1.0-1.4				0.52	0.50
	1.5-1.7				0.61	0.55
	1.8-2.9				0.65	0.60
	3.0-6.0				0.52	0.50
	6.1-7.9				0.41	0.35
	8.0-9.9				0.44	0.35
	10.0-12.0				0.48	0.35
DN65	0.2-0.9	50	50	66	0.39	0.42
	1.0-1.5				0.52	0.55
	1.6-2.0				0.49	0.52
	2.1-3.0				0.54	0.46
	3.1-7.0				0.54	0.46
	7.1-9.0				0.53	0.46
DN80	0.3-0.9	66	66	81	0.47	0.47
	1.0-1.9				0.50	0.45
	2.0-3.3				0.50	0.45
	3.4-4.3				0.50	0.44
	4.4-6.2				0.43	0.36
	6.3-8.0				0.50	0.36
DN100	0.3-1.1	81	81	100	0.36	0.41
	1.2-1.8				0.37	0.41
	1.9-2.4				0.37	0.32
	2.5-3.2				0.44	0.32

[1] not available

7.6 Dimensions

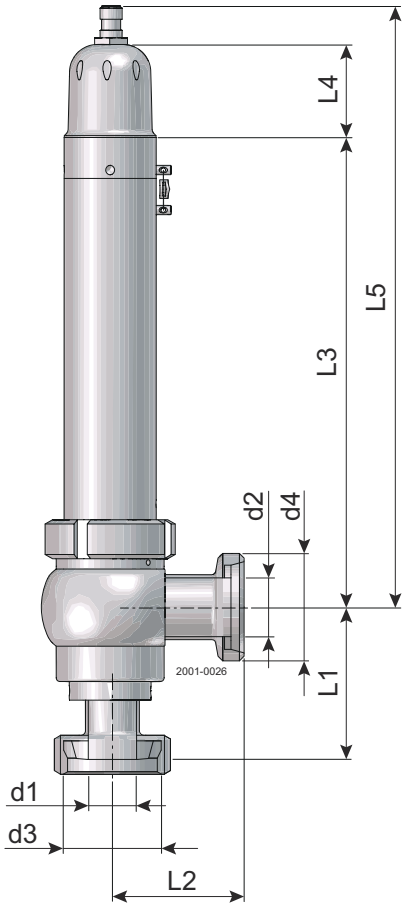


Standard
DN25

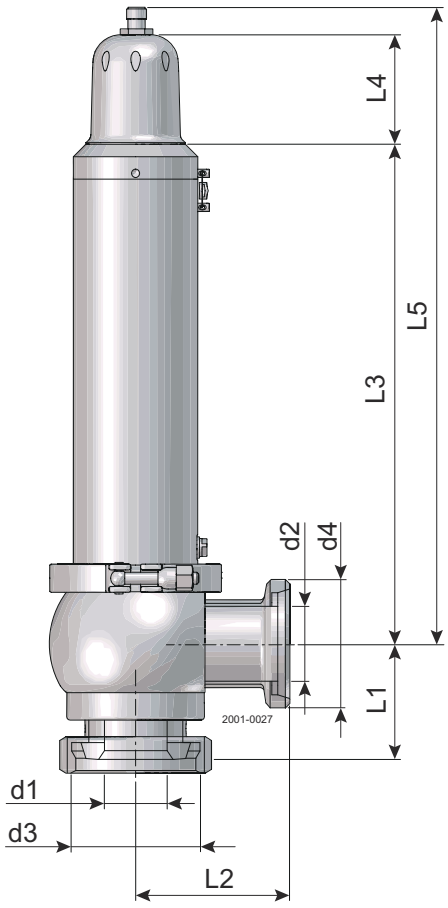


Standard
DN40-DN100

Size	d1	d2	d3	d4	L1	L2	L3	L4	Kg
DN25	26	32	Rd52x1/6	Rd58x1/6	82	72	253	50	6.8
DN40	32	38	Rd65x1/6	Rd65x1/6	68	82	255	66	9.1
DN50	38	50	Rd78x1/6	Rd78x1/6	70	93	301	66	13
DN65	50	66	Rd95x1/6	Rd95x1/6	85	105	402	66	15
DN80	66	81	Rd110x1/4	Rd110x1/4	100	115	407.5	66	22
DN100	81	100	Rd130x1/4	Rd130x1/4	130	130	418	66	28.2

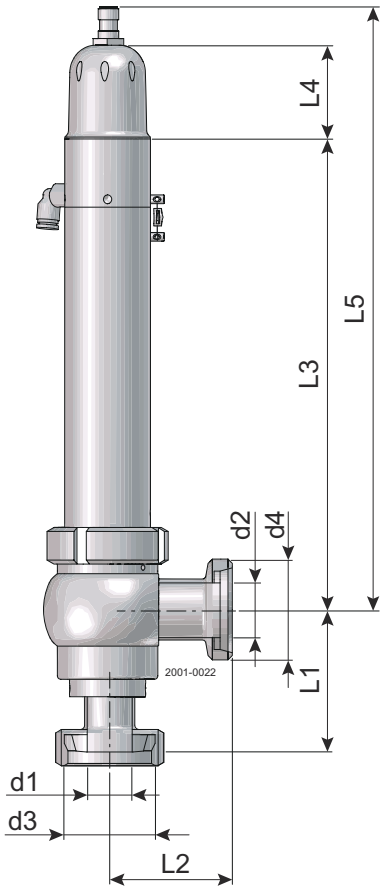


Standard with inductive sensor
DN25

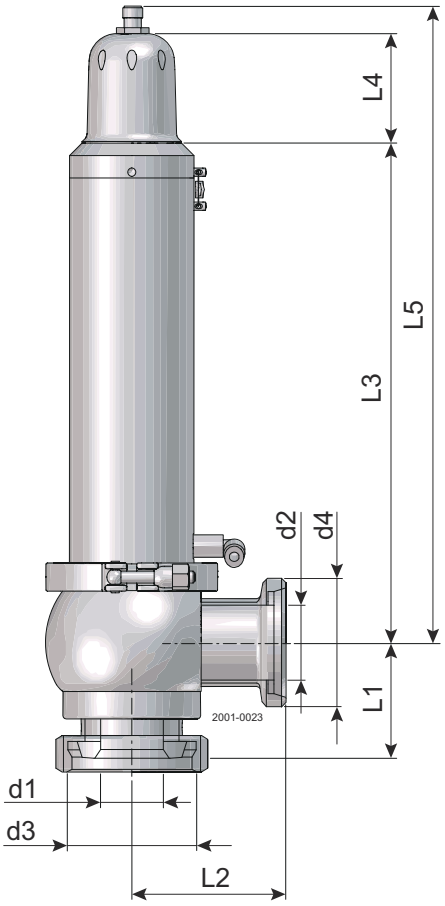


Standard with inductive sensor
DN40-DN100

Size	d1	d2	d3	d4	L1	L2	L3	L4	L5	Kg
DN25	26	32	Rd52x1/6	Rd58x1/6	82	72	253	50	324	6.8
DN40	32	38	Rd65x1/6	Rd65x1/6	68	82	255	66	338	9.1
DN50	38	50	Rd78x1/6	Rd78x1/6	70	93	301	66	384	13
DN65	50	66	Rd95x1/6	Rd95x1/6	85	105	402	66	484	15
DN80	66	81	Rd110x1/4	Rd110x1/4	100	115	407.5	66	489	22
DN100	81	100	Rd130x1/4	Rd130x1/4	130	130	418	66	501	28.2

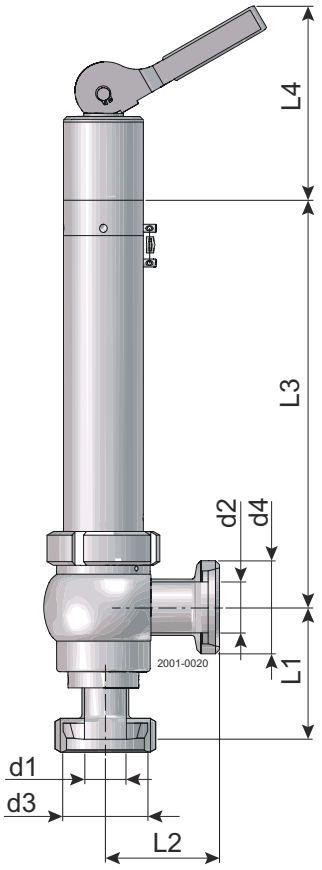


Pneumatic lifting with inductive sensor
DN25

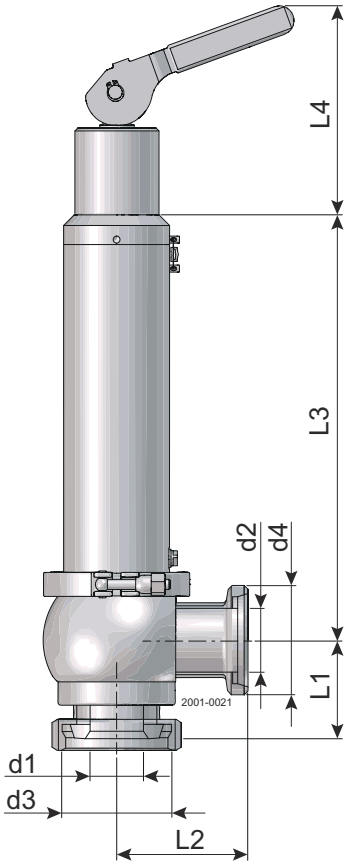


Pneumatic lifting with inductive sensor
DN40-DN100

Size	d1	d2	d3	d4	L1	L2	L3	L4	L5	Kg
DN25	26	32	Rd52x1/6	Rd58x1/6	82	72	253	50	324	6.8
DN40	32	38	Rd65x1/6	Rd65x1/6	68	82	255	66	338	9.1
DN50	38	50	Rd78x1/6	Rd78x1/6	70	93	301	66	384	13
DN65	50	66	Rd95x1/6	Rd95x1/6	85	105	402	66	484	15
DN80	66	81	Rd110x1/4	Rd110x1/4	100	115	407.5	66	489	22
DN100	81	100	Rd130x1/4	Rd130x1/4	130	130	418	66	501	28.2

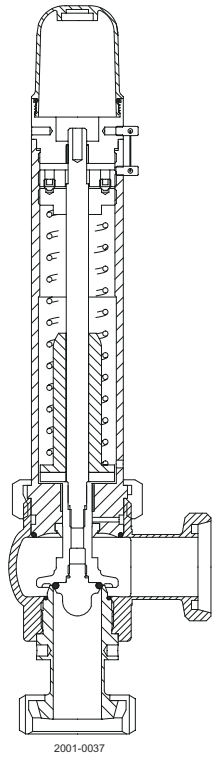


Manual lifting
DN25

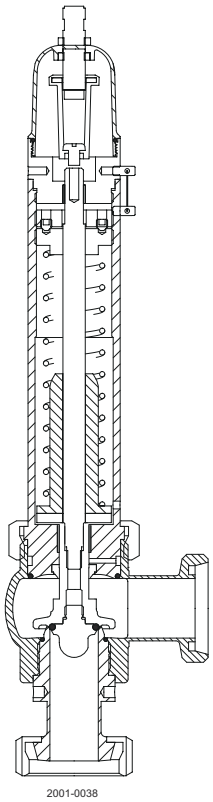


Manual lifting
DN40-DN100

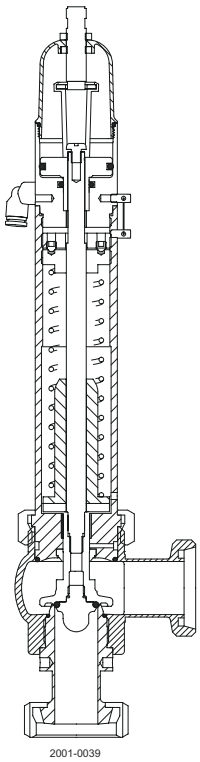
Size	d1	d2	d3	d4	L1	L2	L3	L4	Kg
DN25	26	32	Rd52x1/6	Rd58x1/6	82	72	253	141-182	7.5
DN40	32	38	Rd65x1/6	Rd65x1/6	68	82	255	152-232	10.3
DN50	38	50	Rd78x1/6	Rd78x1/6	70	93	301	154-234	15.5
DN65	50	66	Rd95x1/6	Rd95x1/6	85	105	402	153-233	16.2
DN80	66	81	Rd110x1/4	Rd110x1/4	100	115	407.5	152.5-232.5	23.2
DN100	81	100	Rd130x1/4	Rd130x1/4	130	130	418	152-232	29.6



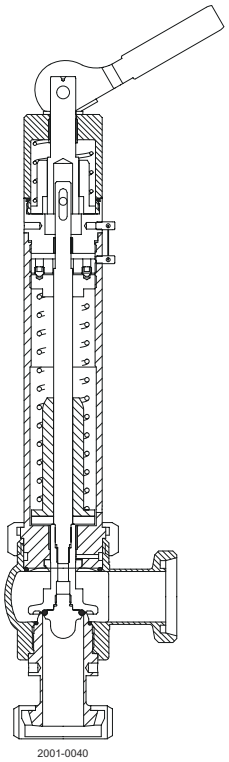
Standard



Standard with inductive sensor



Pneumatic lifting with inductive sensor



Manual lifting

8 Spare Parts

For every delivered Alfa Laval Product, a spare part list is available.

This spare part list contains a range of the most common wear parts for the machinery. If any component not mentioned is required, please contact your local Alfa Laval representative for availability.

You can find our spare part catalogue at *https://hygienicfluidhandling-catalogue.alfalaval.com*.

Always use Alfa Laval genuine spare parts. The warranty of Alfa Laval products is dependent on use of Alfa Laval genuine spare parts.

8.1 Ordering Spare Parts

When ordering spare parts, please always state:

1. Serial number (if available)
2. Item number/spare part number (if available)
3. Capacity or other relevant identification

8.2 Alfa Laval Service

Alfa Laval is represented in all larger countries of the world.

Do not hesitate to contact your local Alfa Laval representative, with any questions or requirement of spare parts for Alfa Laval equipment.

8.3 Warranty - Definition

WARNING

The rules of Intended use are absolute. Use of the supplied Alfa Laval product is allowed only when in compliance with the technical data supplied with the Intended use.

Differing utilisation, other than agreed with Alfa Laval Kolding A/S, exclude any liability and warranty.

No modification or alteration of the supplied Alfa Laval product is allowed, unless explicit permission is granted by Alfa Laval Kolding A/S.

Liability and warranty are excluded:

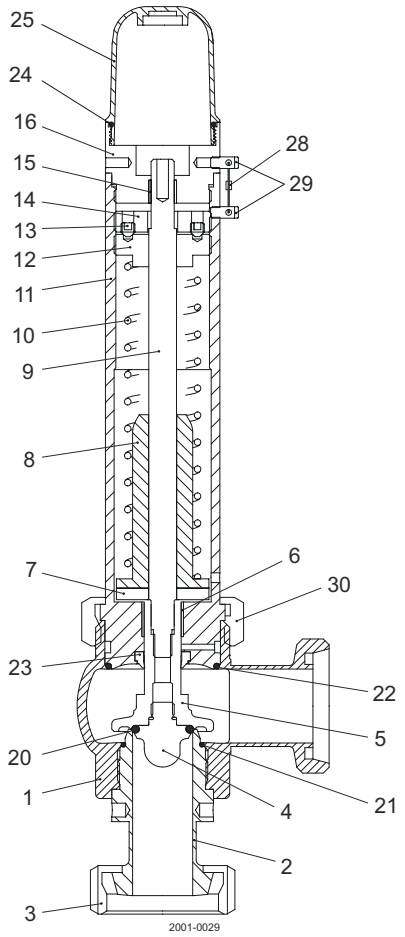
- If advice and instruction of operating instructions are ignored
- For incorrect operation or for insufficient maintenance of the supplied Alfa Laval product
- For any kind of change of function of the supplied Alfa Laval product without prior written agreement by Alfa Laval Kolding A/S
- If supplied Alfa Laval product is modified by non-authorised persons
- If using the supplied Alfa Laval product without attention of appropriate safety regulations, (see *Safety* on page 7)
- If protection equipment is not used and vessel process / ancillary equipment is not brought to a standstill
- If the supplied Alfa Laval product and ancillary parts are not properly maintained (to be executed in intervals and including fitting of prescribed replacement parts)

When exchanging parts, only original replacement parts, released from the manufacturer, must be used.

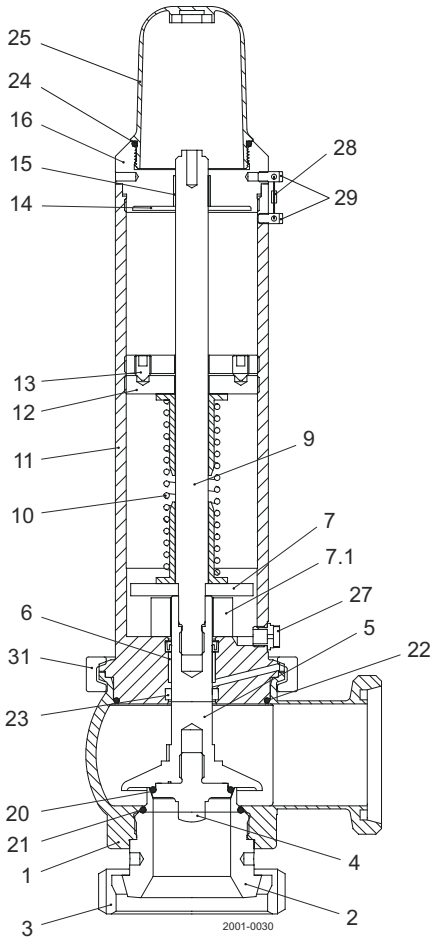
9 Parts Lists and Exploded Views

9.1 Standard

DN25



DN40-DN100

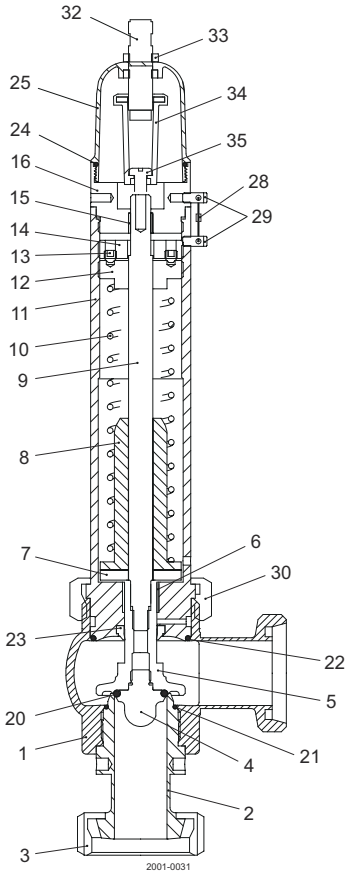


Pos.	Qty.	Denomination
1	1	Body
2	1	Screw-in socket
3	1	Slotted nut
4	1	Piston plate
5	1	Piston
6	1	Plain bearing
7	1	Spring disc
7.1	1	Distance ring
8	1	Spring guide
9	1	Piston rod
10	1	Pressure spring
11	1	Spring housing
12	1	Setting disc
13	2	Headless pin
14	1	Locking disc

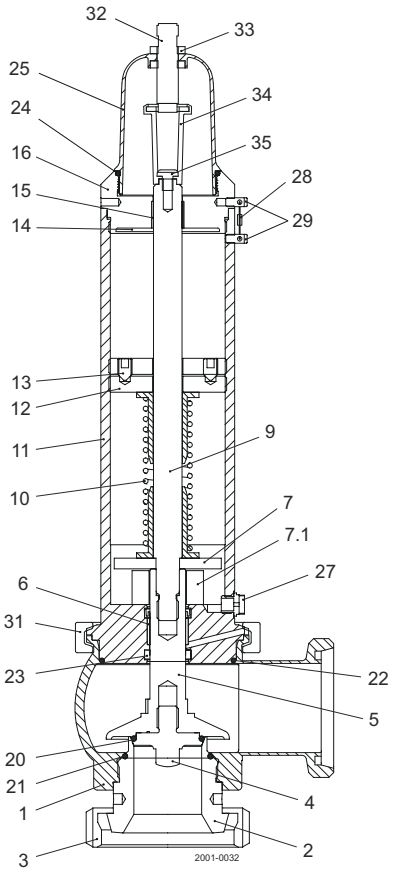
Pos.	Qty.	Denomination
15	1	Plain bearing
16	1	Cover plate
20	1	O-ring
21	1	O-ring
22	1	O-ring
23	1	Shaft sealing
24	1	O-ring
25	1	Hood
25.1	1	Hood incl. o-ring (pos. 24)
27	1	Screw plug - deaeration
28	1	SealingSer
29	2	Screw
30	1	Slotted nut
31	1	Clamp coupling

9.2 Standard with Inductive Sensor

DN25



DN40-DN100

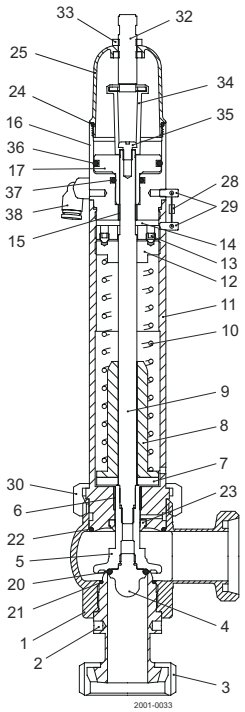


Pos.	Qty.	Denomination
1	1	Body
2	1	Screw-in socket
3	1	Slotted nut
4	1	Piston plate
5	1	Piston
6	1	Plain bearing
7	1	Spring disc
7.1	1	Distance ring
8	1	Spring guide
9	1	Piston rod
10	1	Pressure spring
11	1	Spring housing
12	1	Setting disc
13	2	Headless pin
14	1	Locking disc
15	1	Plain bearing
16	1	Cover plate

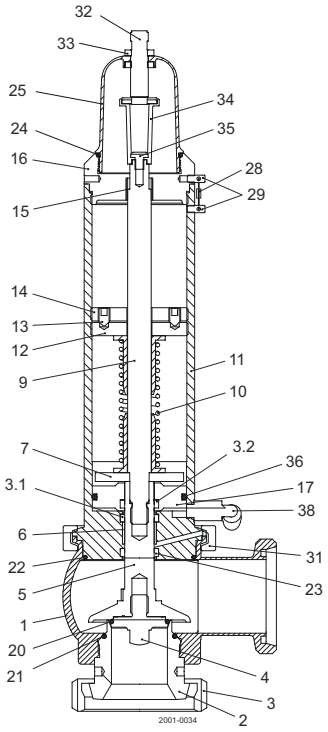
Pos.	Qty.	Denomination
20	1	O-ring
21	1	O-ring
22	1	O-ring
23	1	Shaft sealing
24	1	O-ring
25	1	Hood
25.1	1	Hood incl. o-ring (pos. 24)
27	1	Screw plug - deaeration
28	1	Sealing
29	2	Screw
30	1	Slotted nut
31	1	Clamp coupling
32	1	Sensor
33	1	Nut
34	1	Bracket
35	1	Screw

9.3 Pneumatic Lifting with Inductive Sensor

DN25



DN40-DN100

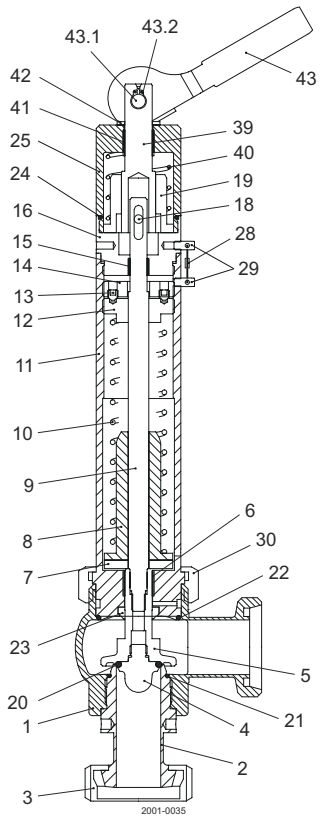


Pos.	Qty.	Denomination
1	1	Body
2	1	Screw-in socket
3	1	Slotted nut
3.1	1	Sealing
3.2	1	Sealing
4	1	Piston plate
5	1	Piston
6	1	Plain bearing
7	1	Spring disc
8	1	Spring guide
9	1	Piston rod
10	1	Pressure spring
11	1	Spring housing
12	1	Setting disc
13	2	Headless pin
14	1	Locking disc
15	1	Plain bearing
16	1	Cover plate
17	1	Piston

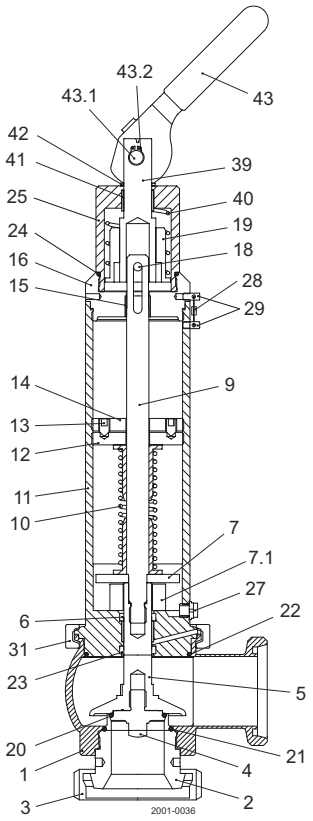
Pos.	Qty.	Denomination
20	1	O-ring
21	1	O-ring
22	1	O-ring
23	1	Shaft sealing
24	1	O-ring
25	1	Hood
25.1	1	Hood incl. O-ring (pos. 24)
28	1	Sealing
29	2	Screw
30	1	Slotted nut
31	1	Clamp coupling
32	1	Sensor
33	1	Nut
34	1	Bracket
35	1	Screw
36	1	O-ring
37	1	O-ring
38	1	Air connection

9.4 Manual Lifting

DN25



DN40-DN100



Pos.	Qty.	Denomination
1	1	Body
2	1	Screw-in socket
3	1	Slotted nut
4	1	Piston plate
5	1	Piston
6	1	Plain bearing
7	1	Spring disc
8	1	Spring guide
9	1	Piston rod
10	1	Pressure spring
11	1	Spring housing
12	1	Setting disc
13	2	Headless pin
14	1	Locking disc
15	1	Plain bearing
16	1	Cover plate
18	1	Pin
19	1	Spring guide

Pos.	Qty.	Denomination
20	1	O-ring
21	1	O-ring
22	1	O-ring
23	1	Shaft sealing
24	1	O-ring
25	1	Hood
27	1	Screw plug - deaeration
28	1	Sealing
29	2	Screw
30	1	Slotted nut
31	1	Clamp coupling
39	1	Rod
40	1	Pressure spring
41	1	Bearing
42	1	Disc
43	1	Lever
43.1	1	Pin
43.2	1	Circlip