

BAA D 365it

Double seat valve
Type D 365it

DN 1 1/2" – 6"



Amendment	Date	Name	Amendment	Date	Name	Amendment	Date	Name	Amendment	Date	Name

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Safety instructions



This symbol indicates a direct and immediate danger to the life and health of persons

Failure to observe these warnings may result in serious damage to health, up to and including life-threatening injuries which may or may not be fatal.



This symbol indicates a potentially hazardous situation!

Failure to observe these warnings may result in less serious injuries, or damage to material property.

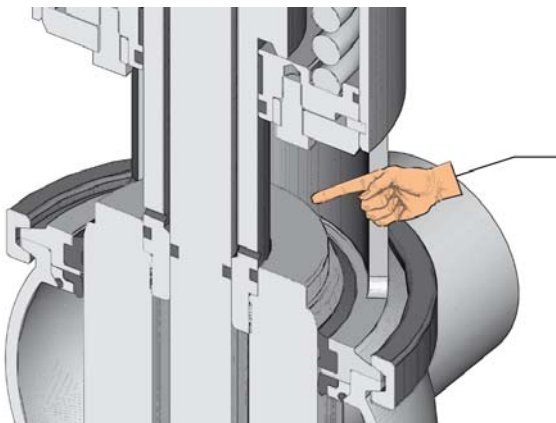


This sign draws your attention to important information about the proper use of the double seat valve. It is essential for this information to be observed.

Failure to observe these instructions may cause malfunctions in the valve or in its vicinity.

General

- ⇒ Double seat valves from Südmö Components GmbH are manufactured in accordance with state-of-the-art standards and the recognized safety rules. However, these double seat valve may constitute a hazard if used by operating personnel improperly or for a purpose other than the intended one. This may result in a risk to life and limb of the user or of third parties, or cause damage to the double seat valve and other material property.
- ⇒ Each person concerned with installation, commissioning, operation and maintenance of this double seat valve must have read and understood the complete operating instructions, and in particular all safety instructions.
- ⇒ In addition to these operating instructions, the following are of course also valid:
 - pertinent accident prevention regulations
 - generally recognized safety rules
 - national regulations of the country of use
 - in-house work and safety regulations.



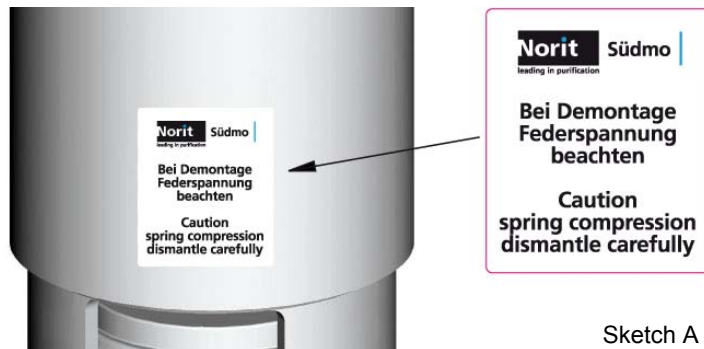
Don't put fingers into valve orifice or movable parts.

⇒ Accident risk.

Fingers can be crushed or cut off.

Maintenance

- ⇒ Our double seat valves should be maintained and commissioned only by qualified personnel. Qualified personnel in the sense of the operating instruction are persons which are familiar with assembly, commissioning and operation of this product and have corresponding qualifications
- Training or instruction according to the current standards of the security techniques concerning corresponding care and use of the security devices
 - First Aid training
 - Plants with explosion protection:
Training, instruction or authorization to effect works on explosive plants (pay attention to ATEX requirements).



Sketch A

- ⇒ Before starting maintenance please make sure that:
- discharge of the pipeline
 - please effect only when there is no pressure and no product in the pipeline
 - to be informed about possible dangers which can occur due to the product and to take the corresponding measures (security glove, protecting glasses)
 - cool down the components if required.
 - exclude commissioning of the plant by a third party.
 - counteract against cushion pressure which can occur in isolated pipelines.
 - do assembly in accordance with assembly instructions.
 - if the closing springs are not preloaded when removing the actuator, there might be danger of injury when the clamping joint is loosened because the drive releases spring tension (see label – sketch A)
 - switch off the power supply.
 - take the double seat valve out of the pipeline section if possible.
- ⇒ Any method of working that impairs the safety and function of the double seat valve must be avoided.

Modification of the double seat valve

- ⇒ The user is obligated to ensure that the double seat valve is always operated in accordance with its designated use and only by safety-conscious persons who are fully aware of the risks involved in its operation. Changes to the double seat valve which impair its functioning or safety must be reported immediately. The user is obligated to ensure that the double seat valve is always operated in technically perfect condition.



Modification of the double seat valve is strictly prohibited.

Storage

- ⇒ Store the valve in a dry place and protect it against external conditions.
- ⇒ Prior to any handling (dismantling of housings / actuators) store valves at least for 24 h in a dry place at a temperature of $\geq 5^{\circ}$ C.

Operation



Danger

- ⇒ **Never touch the valve or piping system when hot products are in processing or during sterilisation**
- ⇒ **Observe strictly the technical data**
- ⇒ **We cannot be held liable for an incorrect use of the valve**

Spare parts



Caution

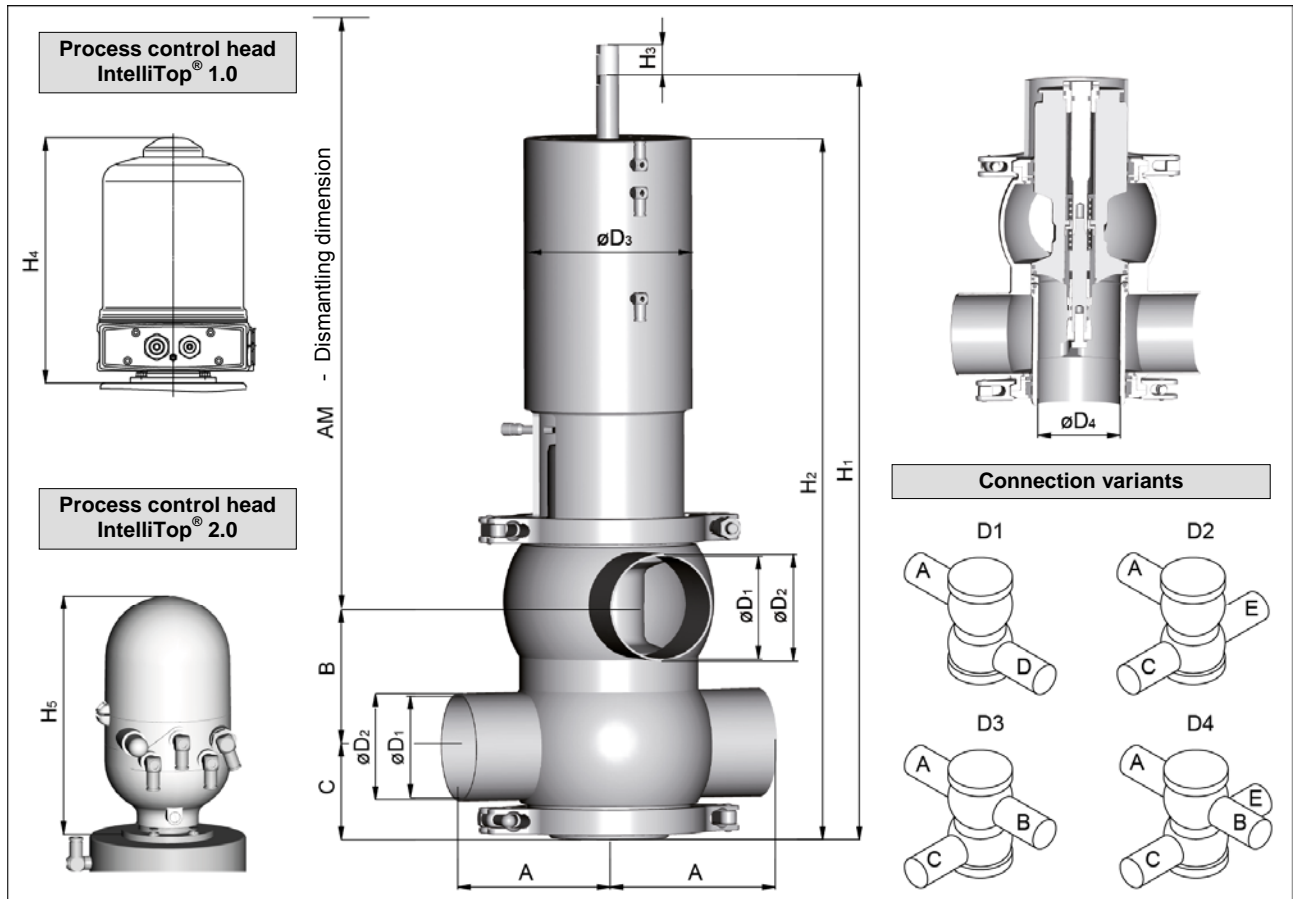
- Please use only original Norit Südmo spare parts**
- **Norit Südmo spare parts see list of spare parts**
- **exclusion of liability by using other spare parts.**

Risk assessment

- ⇒ All safety instructions in these operating instructions result from the risk assessment for the double seat valve.

Technical data

Dimensions



DN	A	B	C	øD ₁	øD ₂	øD ₃	øD ₄	H ₁	H ₂	H ₃	H ₄	H ₅	AM
1 1/2"	124	94	47,7	34,8	38,1	115	63	620	551	40,5	224	206	650
2"	100	94	47,7	47,5	50,8	115	63	620	551	40,5	224	206	650
2 1/2"	125	98,2	76,4	60,2	63,5	132,7	80	633	563,5	42,5	224	206	660
3"	125	110,8	70	72,8	76,1	132,7	80	645,5	576	51,6	224	206	680
4"	150	135,4	87,8	97,3	101,6	159	102	813,5	661	57	224	206	820
6"	250	190,4	116,2	152,4	148,2	270	160	1005	1120	70	224	206	1250

Valve use

Application:

Shut-off valve

For use in:

Low-germ processes

- ⇒ Radial seat of valve disk seal disk allows valve to be opened and closed without any product losses
 - ⇒ stroke timing for both valve disks during general cleaning process enables leakage room cleaning
- Shut-off tightness: 6 bar max. / 87 psi max.
- Vacuum: Leakage rate (mbar x l/s) = $1,5 \times 10^{-5}$

Materials

Seal materials

- ⇒ **EPDM:**
 - Temperature for continuous application in air: -40° C bis +130° C
 - Resistant to
 - Hot water to 100° C
 - Steam to 130° C for continuous application, to 150° C for short time
 - Wort: to 100° C
 - Sodium hydroxide to 100° C and concentration to 5 %
 - Nitric acid to 60° C and concentration to 3 %
 - Peracetic acid to 80° C and concentration to 0,7 %
 - Raspberry flavor room temperature
 - Cherry flavor room temperature
- ⇒ **HNBR**
 - Temperature for continuous application in air: -25° C bis +130° C
 - Resistant to
 - Hot water to 100° C
 - Steam to 130° C for continuous application, to 150° C for short time
 - Sodium hydroxide to 100° C and concentration to 5 %
 - Nitric acid to 60° C and concentration to 1,5 %



The application parameters depend on

- ⇒ application duration per day
- ⇒ switching intervals
- ⇒ kind of product, temperature etc...
- ⇒ type of cleaning (CIP / SIP)

Stainless steel

- In contact with product: 1.4404
- Not in contact with product: 1.4301

CIP cleaning



- ⇒ Valve inner chambers must be cleaned regularly.
- ⇒ When selecting the detergent, please observe the following:
 - Do not use abrasive detergents.
 - Use only detergents that are suitable for seals and stainless steel.
- ⇒ Do not exceed the concentrations and temperatures recommended by the detergent manufacturer.
- ⇒ Observe the safety data sheets issued by the detergent manufacturers!
- ⇒ Non-observance of these instructions will exempt the manufacturer from any warranty and liability.



Cleaning of the upper and lower valve chambers is performed with the cleaning system. As part of the cleaning chamber, the leakage chamber can be cleaned by cycling the valve disc.

Example:

Cleaning step	Lifting of the valve disc
Pre-rinse	
Caustic	3 x 5 sec.
Intermediate rinse	2 x 5 sec.
Acid	3 x 5 sec.
Final rinse	2 x 5 sec.

Surfaces

Surfaces in contact with product: $R_a \leq 1,6 \mu\text{m}$

Optional: $R_a \leq 0,8 \mu\text{m}$
E-polished

Surfaces not in contact with product: bright-turned,
 $R_a \leq 1,6 \mu\text{m}$

Control systems



Process control head IntelliTop® 1.0

Technical data

refer to BA IntelliTop 1.0

Pneum. connections

refer to BA IntelliTop 1.0

Elektrical Connections

refer to BA IntelliTop 1.0

Maintenance

refer to BA IntelliTop 1.0



Process control head IntelliTop® 2.0

Technical data

refer to BA IntelliTop 2.0

Pneum. connections

refer to BA IntelliTop 2.0

Elektrical Connections

refer to BA IntelliTop 2.0

Maintenance

refer to BA IntelliTop 2.0

Electrical and pneumatic connections

Electrical connections

Connect up the electrical and pneumatic systems after installing the valve.



Danger

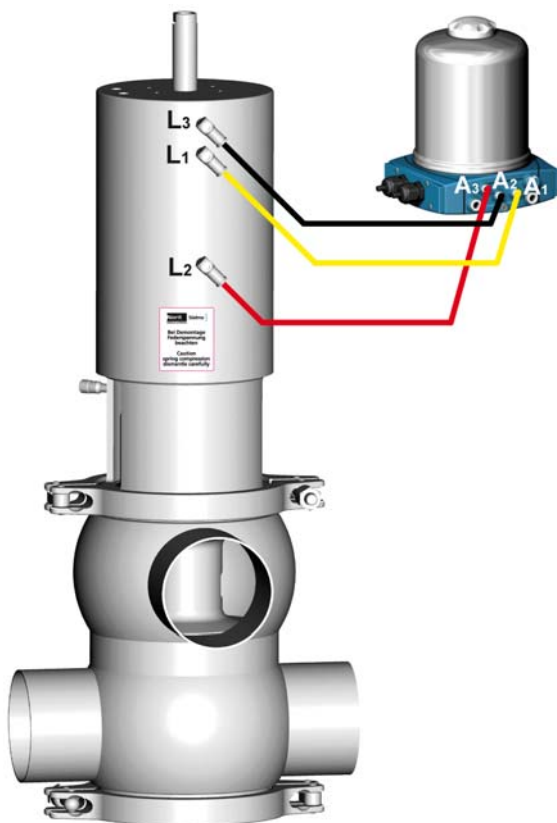
Only qualified personnel may do electrical installation

- ⇒ Observe VDE, IEE, IEC power utility and other locally applicable regulations.
- ⇒ Before connecting it up, check to see whether operating voltage and current match specifications.

Pneumatic connections

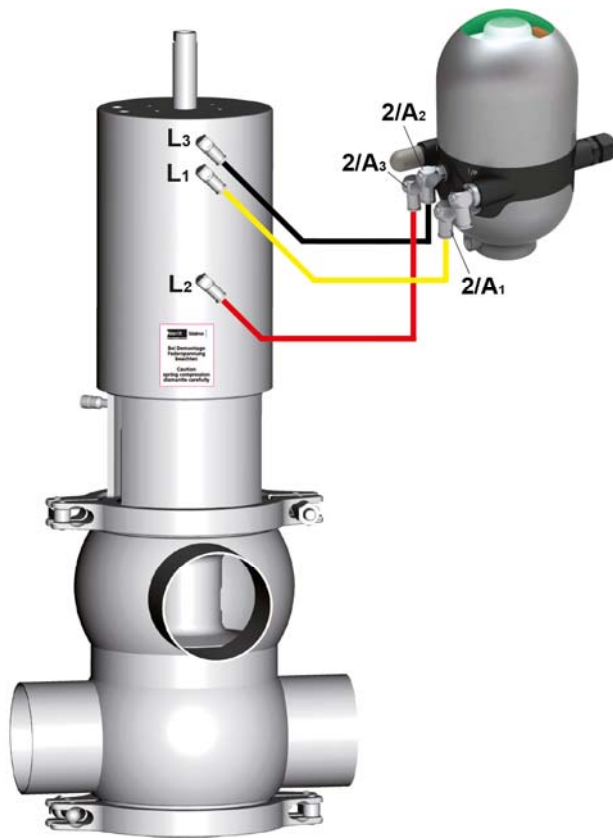
- ⇒ Angular screw-in-union G 1/8, air hose PE ø 6/4
- ⇒ USA:
Angular screw-in-union G 1/8, air hose PE ¼" (ø6,35)

Connection diagram - process control head IntelliTop® 1.0



- ⇒ Main lift
Connect air connection L1 and control head exit A1 with air hose.
- ⇒ Stroke lift closing sleeve - upper seat
Connect air connection L2 and control head exit A3 with air hose.
- ⇒ Stroke lift valve disc - lower seat
Connect air connection L3 and control head exit A2 with air hose.

Connection diagram - process control head IntelliTop® 2.0



- ⇒ Main lift
Connect air connection L1 and control head exit 2/A1 with air hose.
- ⇒ Stroke lift closing sleeve - upper seat
Connect air connection L2 and control head exit 2/A3 with air hose.
- ⇒ Stroke lift valve disc - lower seat
Connect air connection L3 and control head exit 2/A2 with air hose.

Air hose

Use always the hose quality according to Norit Südmo order no. 0490227 (6/4 hose) and 0735563 (8/6 hose) or equivalent:

- ⇒ Air hose black
- ⇒ Material: Polyamid 12
Linear coefficient of expansion: 15×10^{-5}
Version according to DIN73378 soft
- ⇒ Max. operating pressure: AD 6/ ID 4 = 27 bar
AD 8/ ID 6 = 19 bar
all pressure indications at 20°C, higher temperatures have a negativ effect on the max. operating pressure



- ⇒ Use only calibrated hose lines with an outside diameter of 6mm or 1/4" or 8 mm or 5/16" (Tolerance +0,05/-0,1)
- ⇒ Cut the hose line only with a special hose cutter otherwise the hoses can be damaged.
- ⇒ By inappropriate cutting, the hose can leak at the cutting point which can cause a pressure loss.
- ⇒ The length of the hose must be calculated in a way that the hose cannot buckle. If the hose is once buckled it is permanently damaged. This can cause a pressure loss or an interruption of the air supply. Please see manufacturer's instruction regarding the minimum bending radius of the hose.



Insert the air hose tangentially into the connector and fix it. Avoid inclined hoist on the connector as the air hose may buckle and leakages can arise. This can cause a pressure loss or an interruption of the air supply.

Control air

Control air pressure

min. 6 bar – max. 8 bar / min. 87 psi – max. 116 psi

Process control head INTELLITOP® type 8680

refer to BA 8680



Only use clean and dry compressed air !

Control air quality

acc. to DIN/ISO 8573.1

Solid content

Particle size

max. 5 µm

Particle density

max. 5 mg/m³ (quality grade 3)

Water content

quality grade 3

Dew point

-20° C

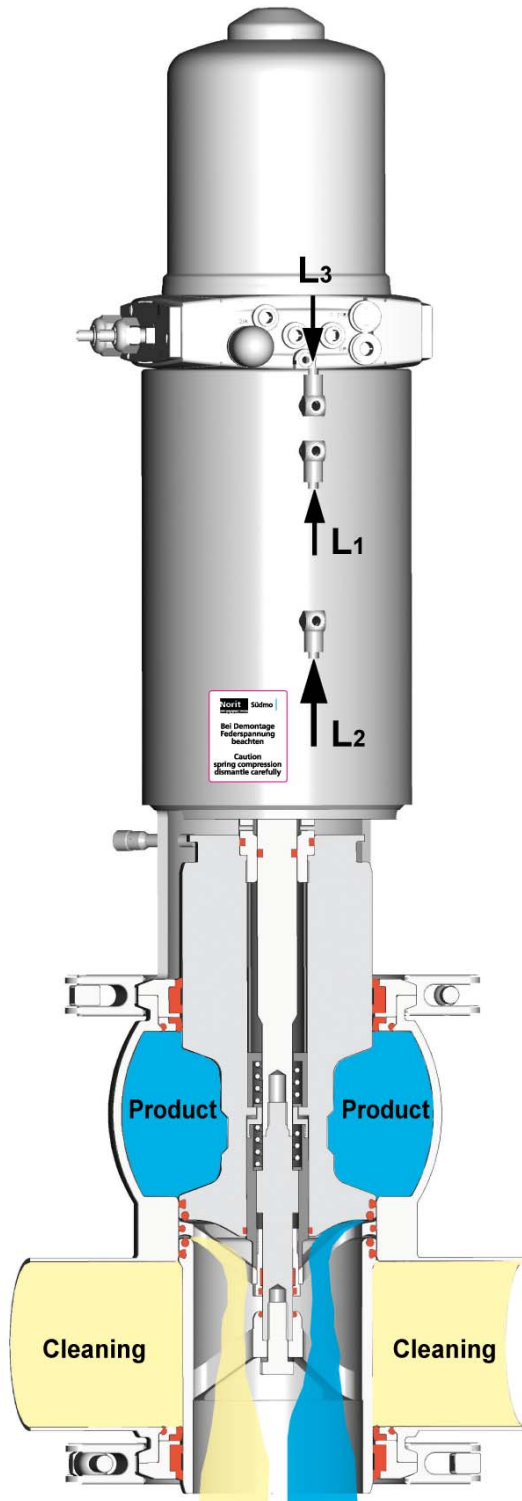
or at least 10° C at lowest ambient temperatures

Oil content

quality grade 3, preferable oil free, max. 25 mg oil 1 m³ air

Valve function

Valve position „CLOSED“

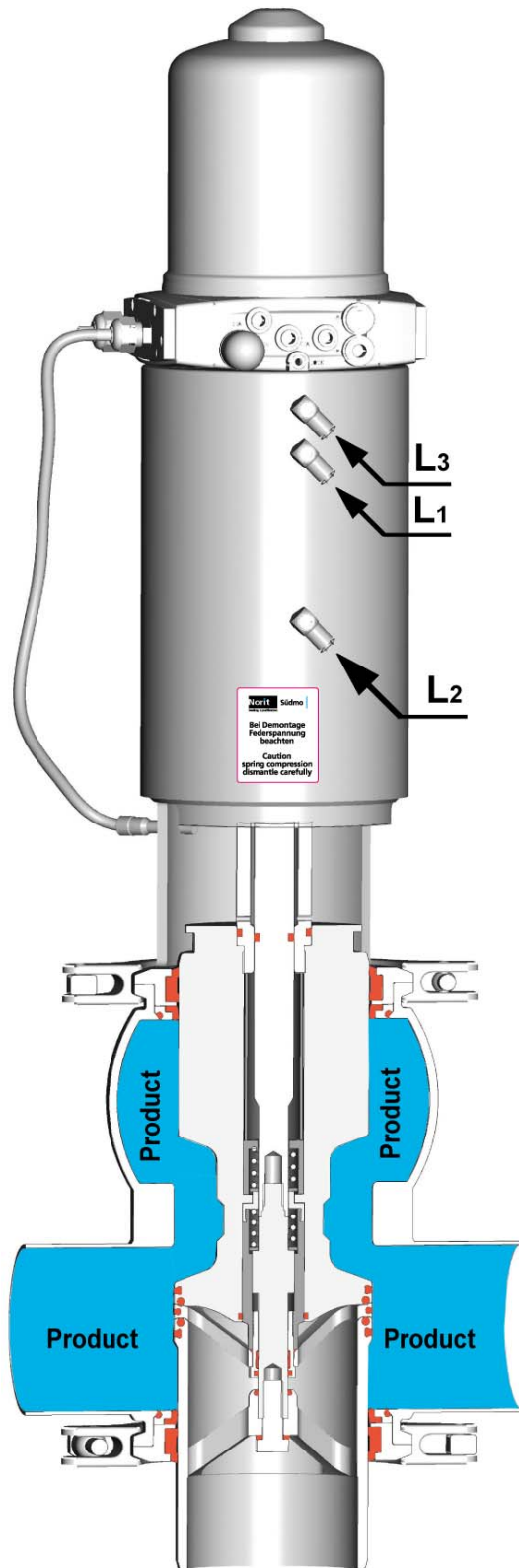


- ⇒ Control air pressure 0 bar / 0 psi on connection L1 (main lift)
- Control air pressure 0 bar / 0 psi on connection L2 (stroke lift closing sleeve - upper seat)
- Control air pressure 0 bar / 0 psi on connection L3 (stroke lift valve disc - lower seat)

- ⇒ Separation of two hostile media

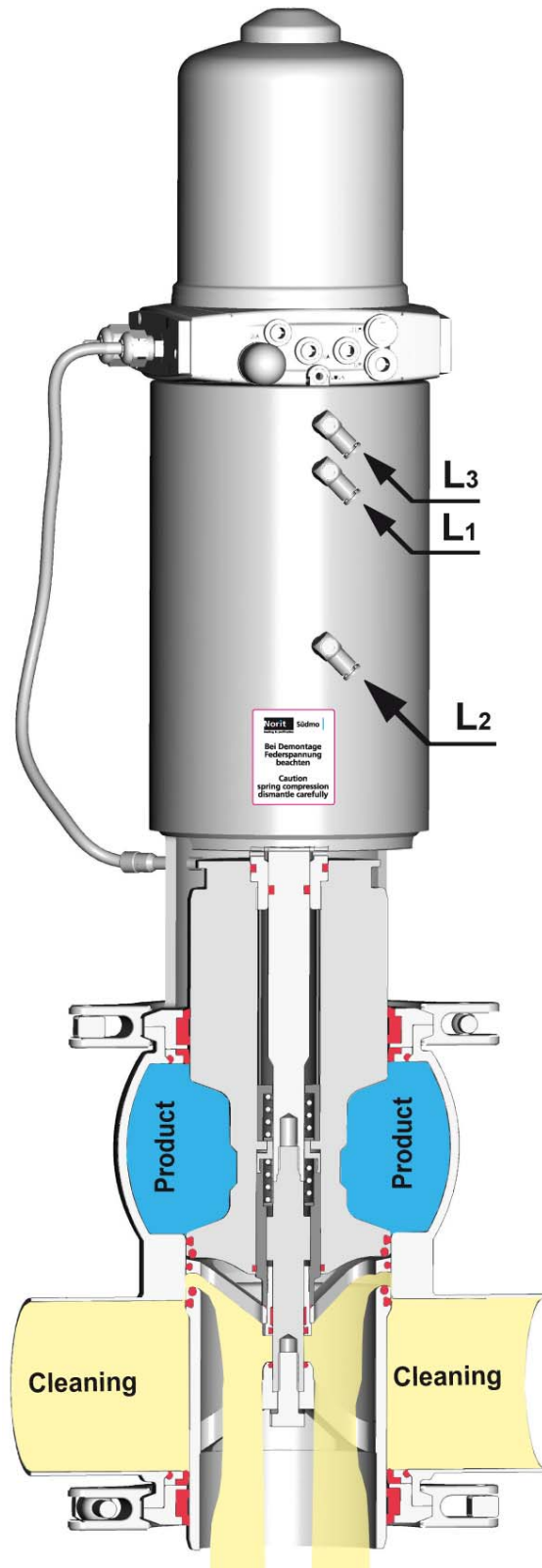
- ⇒ Leakages, if any, are guided outwards through the leakage room in a depressurized state.

Valve position „OPEN“



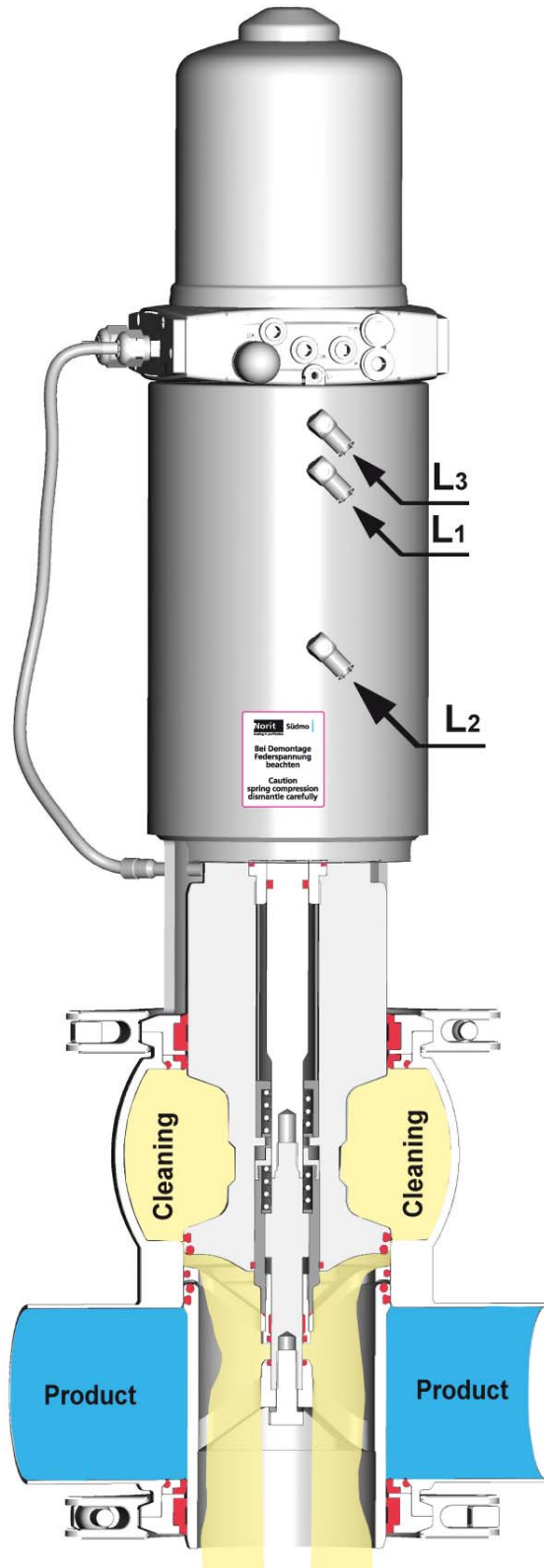
- ⇒ Control air pressure 6 bar / 87 psi on connection L1 (main lift)
Control air pressure 0 bar / 0 psi on connection L2 (stroke lift closing sleeve - upper seat)
Control air pressure 0 bar / 0 psi on connection L3 (stroke lift valve disc - lower seat)
- ⇒ Upper valve disc lowers and closes the leakage chamber
- ⇒ Both valve disks in "open" position
- ⇒ Top and bottom rail will open in relation to each other.

Cleaning of the lower seat via valve housing



- ⇒ Control air pressure 0 bar / 0 psi on connection L1 (main lift)
- Control air pressure 0 bar / 0 psi on connection L2 (stroke lift closing sleeve - upper seat)
- Control air pressure 6 bar / 87 psi on connection L3 (stroke lift valve disc - lower seat)
- ⇒ Closing sleeve is lifted during cleaning procedure
- ⇒ Clearance are cleaned.

Cleaning of the upper seat via valve housing



- ⇒ Control air pressure 0 bar / 0 psi on connection L1 (main lift)
- Control air pressure 6 bar / 87 psi on connection L2 (stroke lift closing sleeve - upper seat)
- Control air pressure 0 bar / 0 psi on connection L3 (stroke lift valve disc - lower seat)
- ⇒ Valve disc lowers during cleaning procedure
- ⇒ Clearance are cleaned.

Valve connection piping

Installation position

Vertical

Ensuring that product can drain from valve and piping.

Valve connections

Welding end

Welding instructions see page 17.

Installation instructions

Dismantle valve in accordance with page 19.



- ⇒ **Remove seals before welding.**
- ⇒ **Valve body must be free from stress and distortions when welded.**
- ⇒ **Welding works have to be effected only by approved qualified personnel (DIN 287-1 W11).**
- ⇒ **Do not allow any foreign bodies to enter the piping.**

Installation instructions

General remarks

We strongly recommend that the fittings should be installed by specially trained, qualified personnel.



Caution

Welding works have to be effected only by approved qualified personnel (DIN 287-1 W11).

We cannot be held liable for any loss damage or injury resulting from incorrect installation.

Delivery condition

- ⇒ Factory-tested and adjusted.
- ⇒ Ready for installation or for welding into the piping

Installation instructions

Installation space

Determine and define the connection axes before starting installation work. Observe the installation dimensions specified in the dimensional drawings.

Ensure that there is sufficient space available for both operation and maintenance, which may include removal..

Installation

Make sure that the fittings and piping are not subjected to tensile or compressive stresses.

Welding instructions

Area of application

Welding of fittings into pipes according to DIN 11850 series 1, 2; OD-Tube; DIN EN ISO 1127

Welding technique

TIG (tungsten inert-gas welding)

Type of welding

- ⇒ Preparation of the welding seam according to DIN 2559 (groove shape I / for I-groove)
- ⇒ Welding seams corresponding to DIN EN ISO 5817 → evaluation group B (high)

Weld preparation

Saw off the pipe ends evenly and at right angles, and debur them (pipe saw M882). Align the welding ends of the valve body and piping radially and axially, ensuring they are fitted flush together (centering device).



There must be no gap at the flush-fitted welding ends as the corrosion resistance of the welded joint would be impaired by the escaping forming gas.

Welding

Connect the forming gas. Tack at 3 or 4 points. Type of welding: TIG-manual or orbital (automatic welding).

Weld filler materials

Material allocation

Material of parts to be welded	Suitable weld filler materials		
	1.4430	1.4440	1.4519
1.4404	X		
1.4435	X	X	X
1.4571	X	X	

Weld finishing

Interior

Weld finishing not required. Improvement of surface finish by grinding (at accessible points).

Exterior

Weld finishing methods

- ⇒ pickling - dispose pickling paste correctly
- ⇒ brushing
- ⇒ grinding
- ⇒ polishing

Cleaning

Clean thoroughly before assembly.

Assembly

Assemble the fittings in accordance with the assembly instructions.

Dismantling – Assembly

Before disassembly

Do assembly in accordance with assembly instructions.

Please always take the following steps before loosening the valve connections and clamp connection on the valve housing:



Danger

- ⇒ **Ensure that there is no work being done in that area when doing service and maintenance work.**
- ⇒ **Evacuate all pipeline elements leading to the double seat valve and clean or rinse if necessary.**
- ⇒ **Shut off the control air if not required for disassembly.**
- ⇒ **switch off the power supply.**
- ⇒ **take the double seat valve out of the pipeline section if possible.**

Before assembly, clean and grease the sliding surfaces and lubricate the sealing elements.

Seal materials	Grease type
EPDM	PARALIQ GTE 703
HNBR	PARALIQ GTE 703
NBR	RENOLIT SI 410 M



Caution

- ⇒ **If a different grease is used**
→ **it may attack seals.**
- ⇒ **Please do not use mineral or animal greases.**
- ⇒ **Don't use grease based on petroleum.**

Spare parts



Caution

- ⇒ **Please use only original Norit Südmo spare parts.**
- **Norit Südmo spare parts see list of spare parts**
- **exclusion of liability by using other spare parts**

Replacing product-touched seals

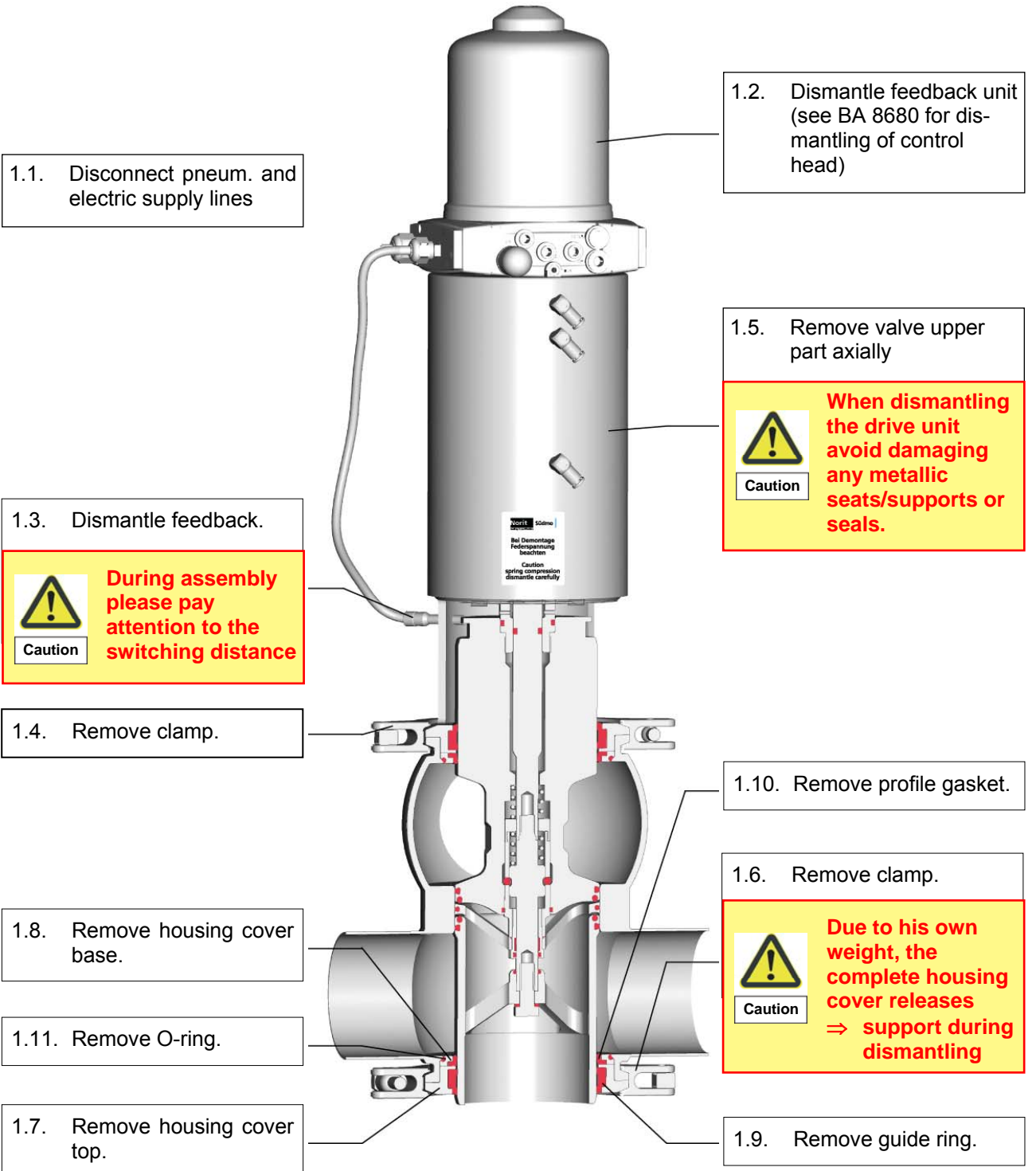
Dismantling

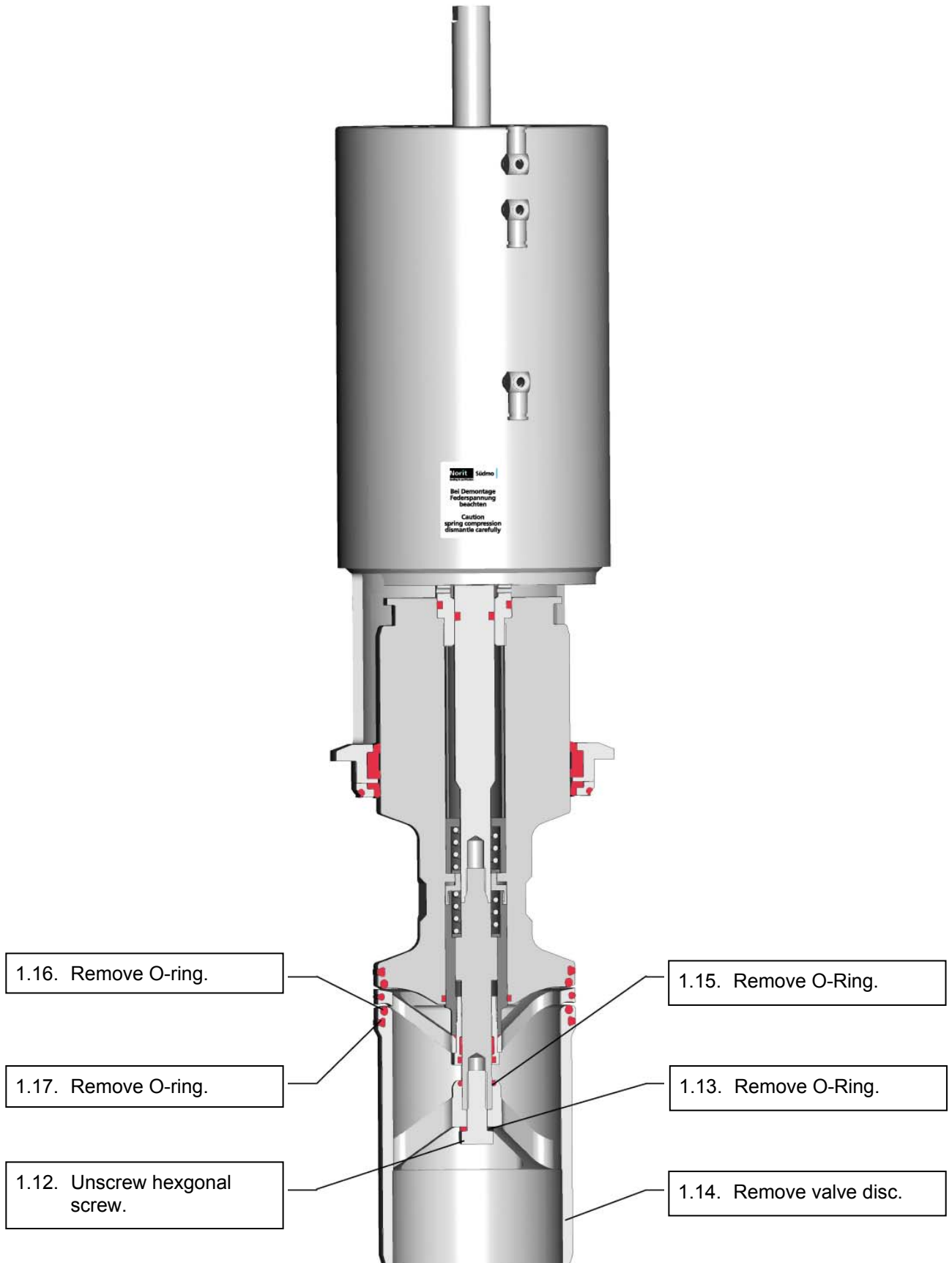
In succession 1.1. – 1.38.

Assembly

In succession 1.38. – 1.1.

Assembly steps 1.2. – 1.3. are only required when replacing product-touched seals and drive seals.



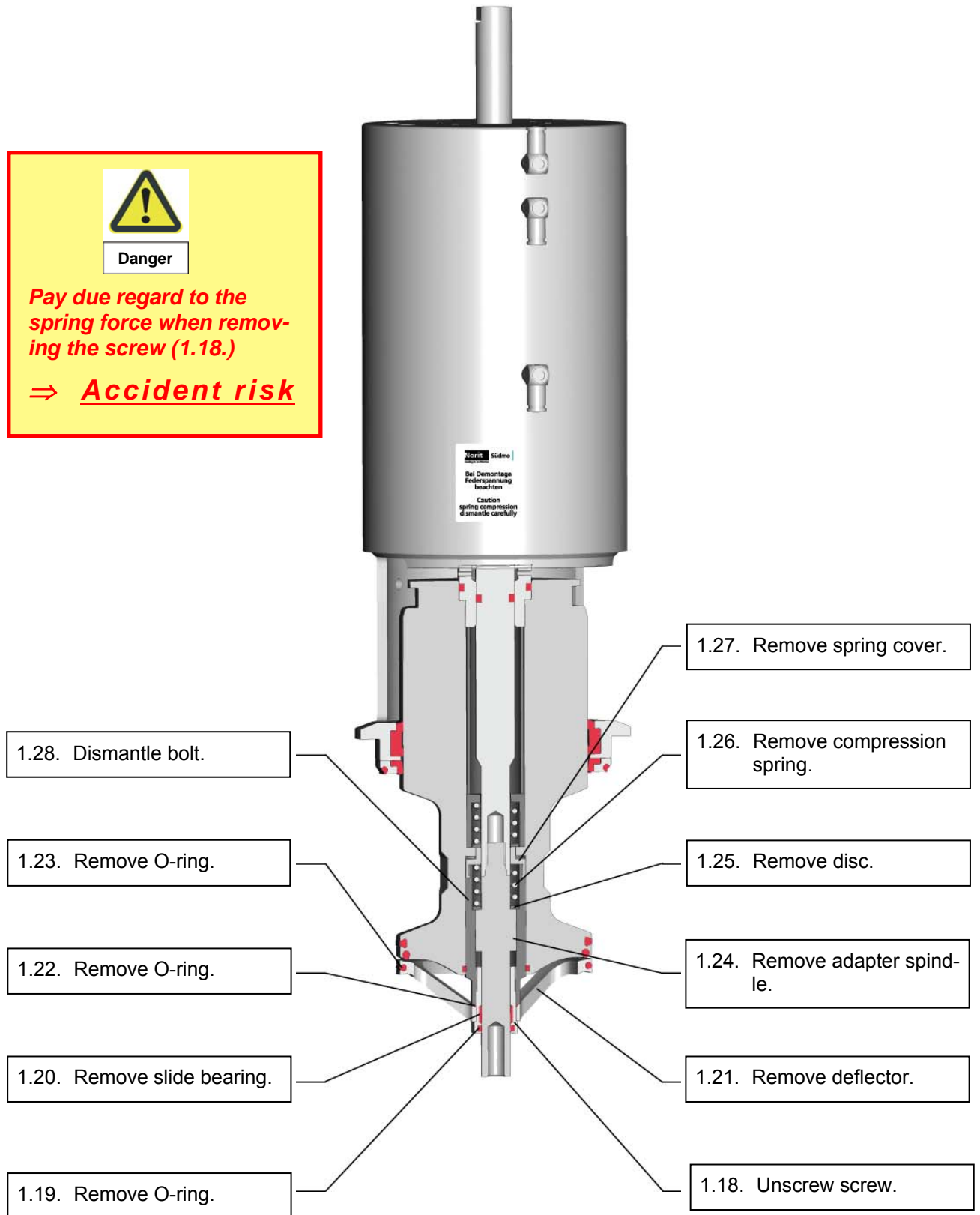





Danger

Pay due regard to the spring force when removing the screw (1.18.)

*⇒ **Accident risk***

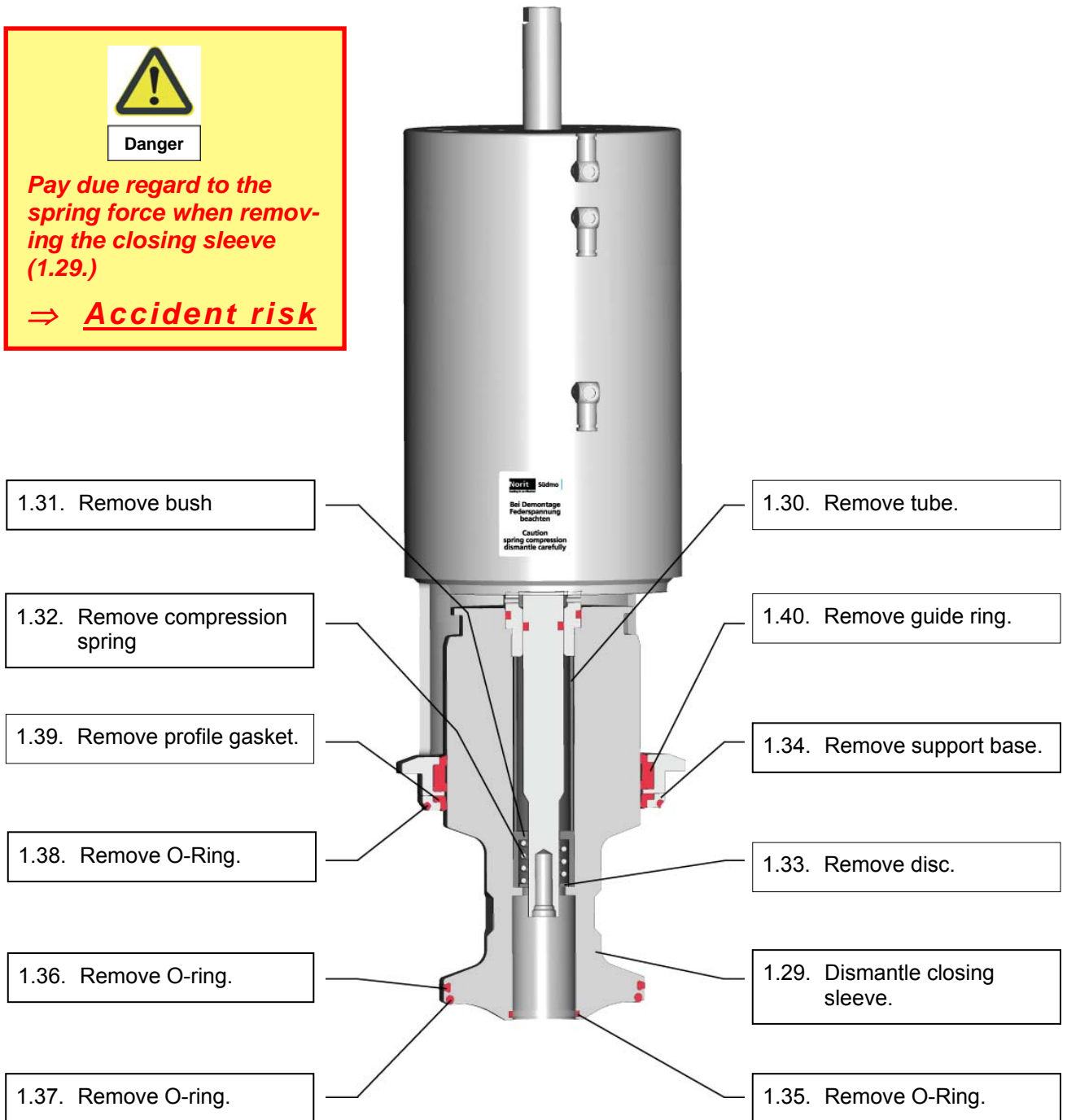




Danger

Pay due regard to the spring force when removing the closing sleeve (1.29.)

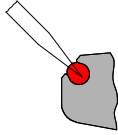
⇒ **Accident risk**



Assembly O-ring

Removal

- ⇒ O-Ring is installed in positive contact under pretension.
- ⇒ It must be removed as shown in drawing.



Caution

**Don't damage sealing groove
(edges of groove).**

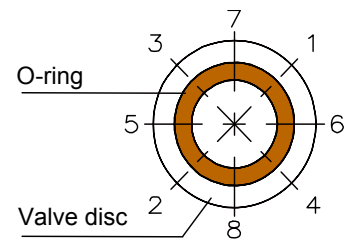
Installation

- ⇒ Press O-ring in sequence 1 – 2, 3 – 4 etc. into groove.
- ⇒ Roll O-ring section by section 1 – 6, 5 – 2 etc into groove.
- ⇒ Use round object of plastic or wood for installation.



Caution

Avoid drilling and damging the O-ring by assembly.



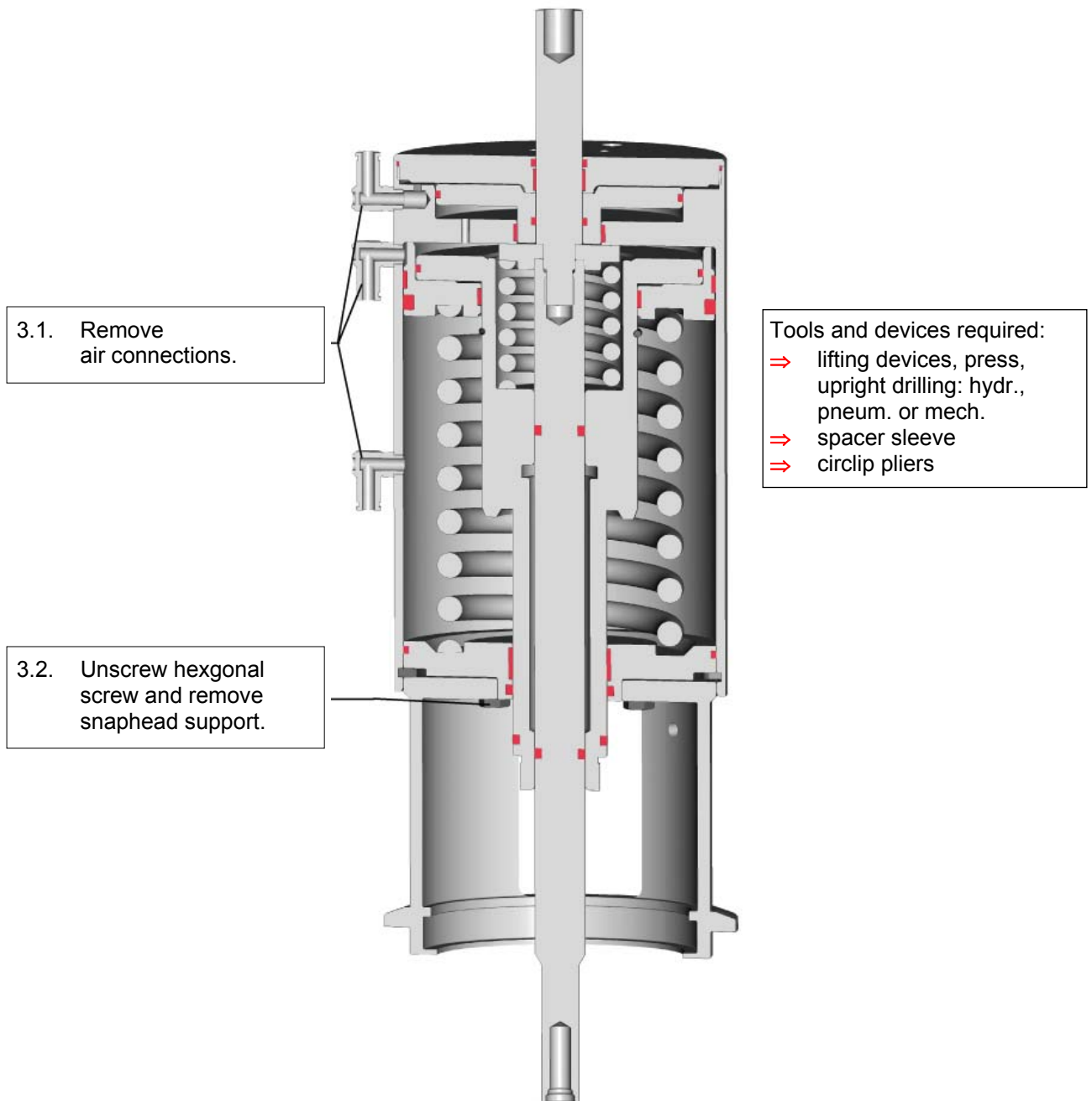
Drive seal replacement

Dismantling

In succession 3.1. – 3.32.

Assembly

In succession 3.32. – 3.1.




Danger

Pay due regard to the spring force when removing the compression springs

⇒ **Accident risk**

3.3. Position pneumatic actuator centrally in lifting device

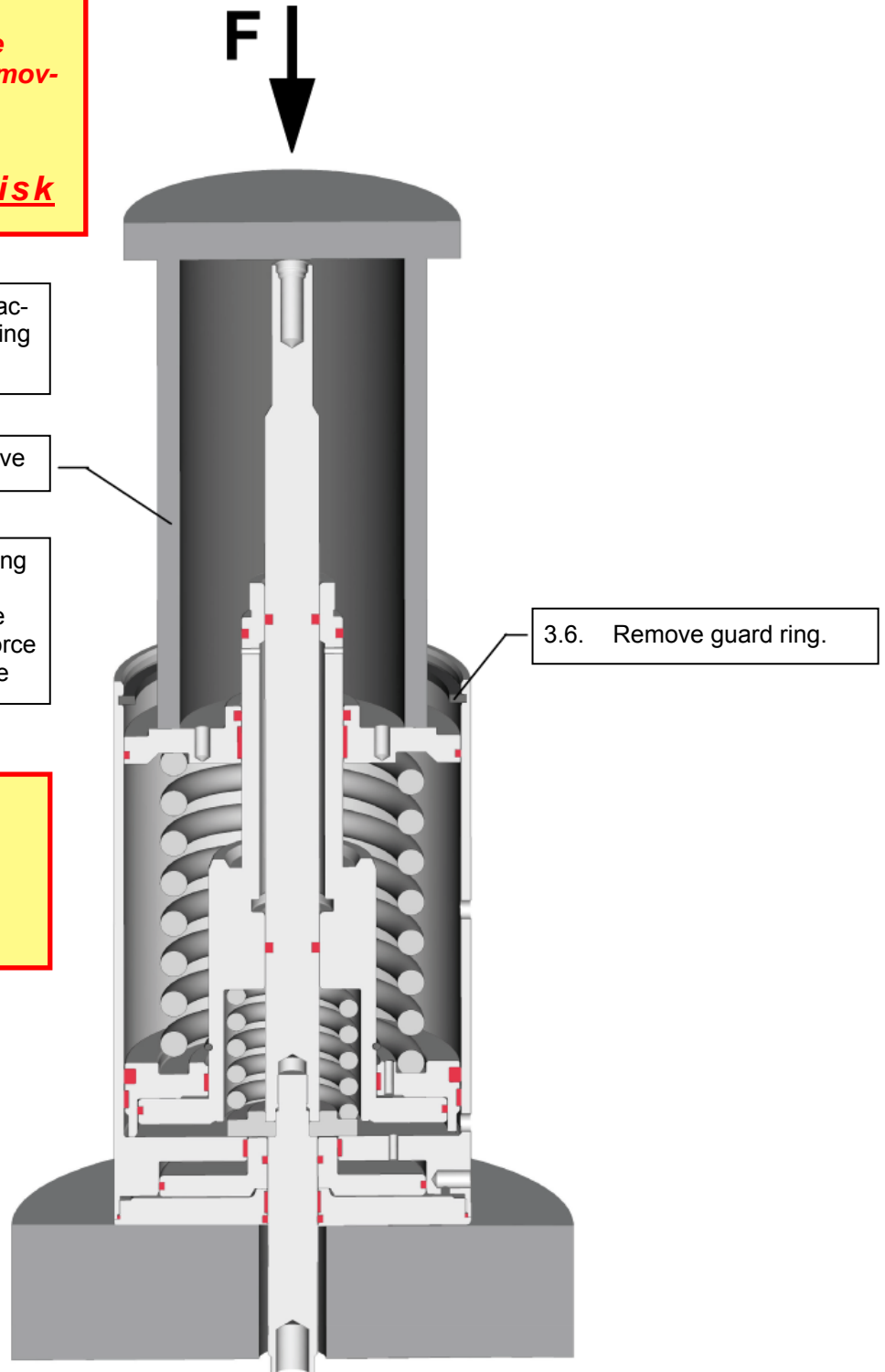
3.4. Position spacer sleeve

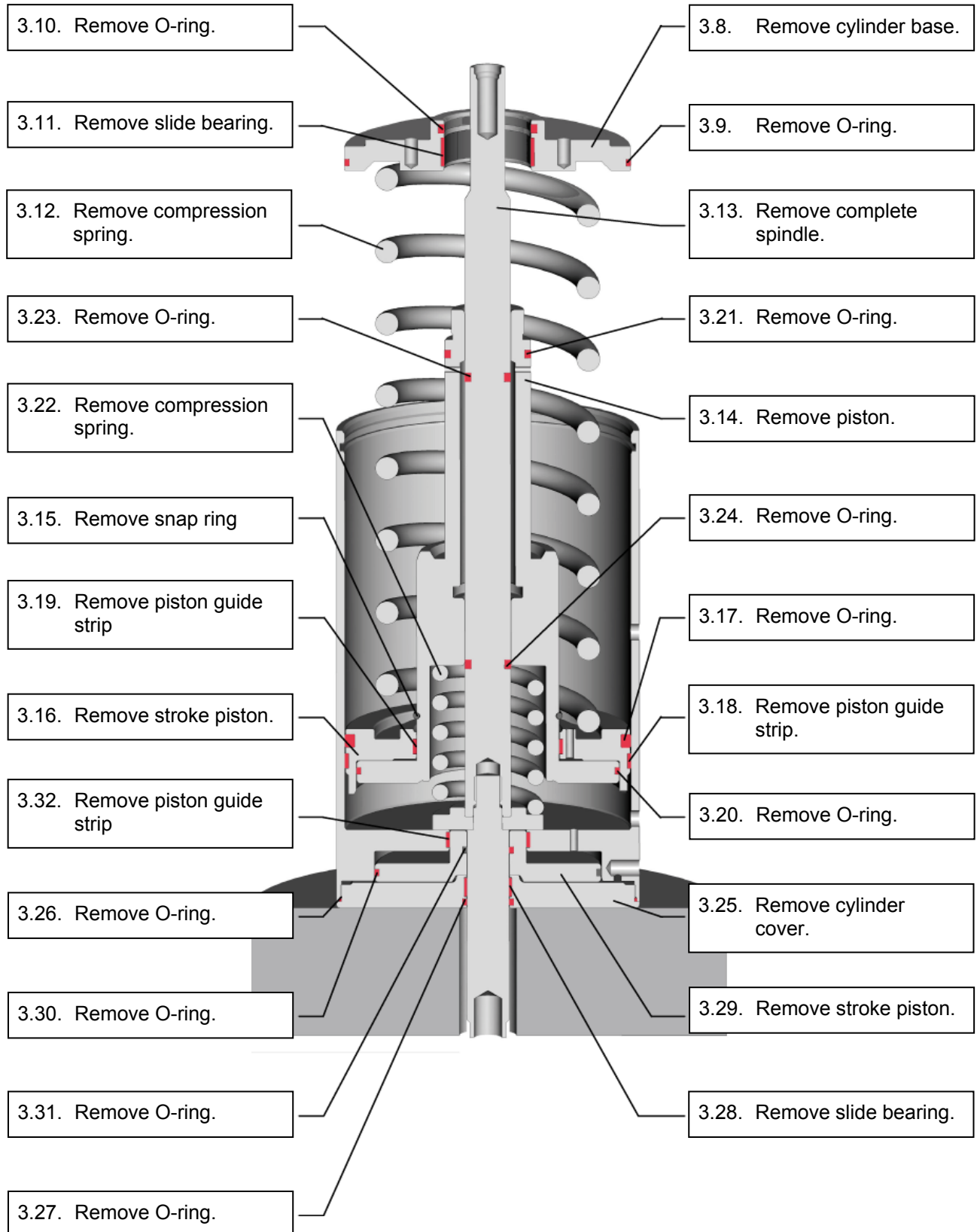
3.5. Lower plunger of lifting device slowly on to spacer sleeve. Move cylinder base with force F in direction of force

3.7.


Danger

Release spring force.





Start-up



- ⇒ ***Ensure that no foreign objects are present in the piping system.***
- ⇒ ***Avoid temperature shock!
Component should be heated up carefully till operating temperature is achieved.***

Functional test

Multiple switching of the valve by means of actuation with compressed air.
System must be cleaned before the first product run.

Leak test

Check visually that all seals are free from leaks.
Defective seals must be replaced.

Maintenance

Before maintenance



Danger

- ⇒ **Ensure that there is no work being done in that area when doing service and maintenance work**
- ⇒ **Pay due regard to the electric supply voltage; switch off the power supply if necessary.**
- ⇒ **Maintenance work must be carried out by qualified and trained personnel only.**

Inspection

Norit Südmo valves do not special maintenance. Between maintenance intervals, however, the seal tightness and correct operation should be verified by means of a periodic visual inspection.

Preventive maintenance

Practice-oriented maintenance intervals can only be determined by the respective user/operator as they are dependent on the following application parameters:

- ⇒ Operating frequency
- ⇒ Switching intervals
- ⇒ Type of product
- ⇒ Type of cleaning (CIP / SIP)

We can recommend the following data as guide values:

- ⇒ for liquids with solid particles and temperatures of 80 °C to 100 °C approx. every 3 – 6 months
- ⇒ for liquids with solid particles and temperatures of 60 °C approx. every 12 months
- ⇒ for liquids without solid particles and with temperatures of max. 60 °C approx. every 24 months.

In cleaning systems, intervals of 12 months are recommended.

The intervals stated above are, of course, based on the assumption that the seal materials are sufficiently chemical-resistant.

Disorder - trouble shooting



Danger

- ⇒ **Never touch the valve or piping system when hot products are in processing or during sterilization.**
- ⇒ **Observe strictly the technical data.**
- ⇒ **We cannot be held liable for an incorrect use of the valve.**



Caution

- ⇒ **In the event of disorders immediately deactivate the valve and secure it against inadvertent reactivation.**
- ⇒ **Defects may only be rectified by qualified personnel observing the safety instructions.**

Disorder	Cause	Trouble shooting
Valve does not work	⇒ Error in the control system	⇒ Check the plant configuration
	⇒ no compressed air	⇒ check the air supply
	⇒ air pressure too low	⇒ Check the air hoses for free passage and leaks
	⇒ Error in the electric system	⇒ Check actuation / process control head and routing of electric lines
	⇒ Solenoid valve damaged	⇒ Replace the solenoid valve
Discharge of air from the actuator	⇒ faulty gaskets in the actuator	⇒ change gaskets
Valve does not close	⇒ Dirt / foreign materials in the seal area	⇒ Clean valve housing and seal area closing sleeve and valve disc
Valve closes too slow	⇒ Actuator seals dry (friction losses)	⇒ Grease the seals - Note grease plan
Leakage in the leakage chamber	⇒ defective valve disc gasket or closing sleeve gasket	⇒ change gaskets
Leakage on the support	⇒ defective gaskets	⇒ change gaskets
Leakage in the housing cap	⇒ defective gaskets	⇒ change gaskets
Valve closes jerkily	⇒ Actuator seals dry (friction losses)	⇒ Grease the seals - Note grease plan
		⇒ change gaskets

Disposal

Before disposal

Please always take the following steps before disposal the double seat valve:



Danger

- ⇒ **ensure that there is no work being done in that area.**
- ⇒ **evacuate all pipeline elements leading to the double seat valve and clean or rinse if necessary.**
- ⇒ **shut off the control air if not required for disassembly.**
- ⇒ **switch off the power supply.**

Parts of double seat valve

For the manufacture of a double seat valve the following materials are used:

- ⇒ metal parts AISI 316L, AISI 304(L)
- ⇒ all gaskets Elastomere and PTFE
- ⇒ all guidings plastic

Double seat valve disposal

How to prepare the shutdown of a double seat valve:

- ⇒ Find out how to dispose the component part respectively the complete double seat valve.
 - If necessary, ask your environmental representative.
- ⇒ Dismount the double seat valve from the connected pipe system
- ⇒ Dismount the double seat valve as described in „Dismantling – Assembly“ (page 19 – 26).
- ⇒ Remove all gaskets from the valve parts of the double seat valve.
- ⇒ Dispose all parts of the double seat valve in accordance the health and environmental regulations.

EC Declaration of Incorporation

The manufacturer,

Südmö Components GmbH
Industriestraße 7
D-73469 Riesbürg-Pflaumloch

hereby declares that the:

Double seat valves

Type: D 365it

Article no.: D 365it

Year of manufacture: 2010

complies with the following basic requirements of the **Machinery Directive (2006/42/EC)**.

Annex I, Article 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4, 1.5.3, 1.5.4, 1.5.5, 1.5.13, 1.6, 1.7.1, 1.7.2, 1.7.3, 1.7.4 and 2.1.

The partly completed machine / system component furthermore complies with all regulations of the directives **Electrical equipment (2006/95/EC)** and **Electromagnetic compatibility (2004/108/EC)**.

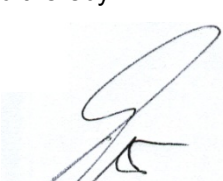
Applied harmonized standards

- ⇒ DIN EN 12100-1 Safety of machinery – Basic terms, general principles for design - Part 1: Basic terminology, methods
- ⇒ DIN EN 12100-2 Safety of machinery – Basic terms, general principles for design, part 2: Technical principles and specifications
- ⇒ DIN EN 60204-1 Safety of machinery - Electrical equipment of machines, Part 1: General requirements
- ⇒ DIN EN 1672-2 Food processing machinery – Basic concepts – Part 2: Hygiene requirements

Do not put the partly complete machine / system component into operation unless it has been verified that the machine/system the partly complete machine/system component is to be built into complies with the regulations of the machinery directive (2006/42/EC).

The manufacturer commits to send the special documents regarding the partly completed machine **as a hard copy** to the national authorities. The industrial property rights of the manufacturer of the partly completed machine shall not be affected thereby.

TD authorized person


Engineering management: Werner Deger,
Südmö Components GmbH
Industriestraße 7, D-73469 Riesbürg

Riesbürg, 17.11.2010


Managing Director
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Copy of Original operating instructions