

Instruction manual

Version 1.3

No.: 9010025A00M

eloLance

SL2D1, SL2D2, SL2R



Table of contents

1. General	4
1.1. Signs and symbols	4
1.2. Article key and designation	4
1.2.1. Article key SL2D.....	5
1.2.2. Article key SL2R.....	5
1.3. Chemical resistance	5
1.4. Liability exclusion	6
1.5. Manufacturer	6
1.6. Warranty.....	6
2. Safety	6
2.1. Intended use.....	6
2.2. Reasonably foreseeable misuse	7
2.3. Target applications / areas of application.....	7
2.4. Definition of personnel groups.....	7
2.4.1. Qualification and training.....	7
2.4.2. User / operating and maintenance personnel	7
2.4.3. Operator/contractor.....	7
2.5. Signal words.....	7
2.6. Pictograms	8
2.7. Conformity	8
2.8. Changes/modification.....	8
3. Transport/storage	8
3.1. General notes.....	8
4. Technical data	9
4.1. Mechanical specifications.....	9
4.1.1. SL2D1... / SL2D2.....	9
4.1.2. SL2R.....	10
4.2. Electrical data.....	11
4.2.1. SL2D1.....	11
4.2.2. SL2D2.....	11
4.2.3. SL2R.....	12
4.3. Environmental and operating conditions	12
4.3.1. SL2D1... / SL2D2.....	12
4.3.2. SL2DR.....	13
4.4. Definition of the components	13
4.4.1. Exploded view SL2D1... / SL2D2.....	13
4.4.2. Exploded view SL2R.....	14
4.4.3. Hose outlet process connection	14
4.4.4. Clamping cone	15

5.	Installation and putting into service	15
5.1.	Method of operation	15
5.2.	Installation	16
5.3.	Before commissioning	16
5.4.	Mechanical connection	17
5.4.1.	<i>Scope of delivery</i>	17
5.4.2.	<i>Assembly and disassembly of the hose connector</i>	17
5.4.3.	<i>Hose installation</i>	17
5.4.4.	<i>Mounting the container lid on the clamping cone</i>	18
5.4.5.	<i>Mounting the eloLance with container lid in container</i>	18
5.4.6.	<i>Mounting the eloLance with clamping cone</i>	19
5.5.	Electrical connection	19
5.6.	Reversing the switching function by turning the float	20
5.7.	Putting into service	20
5.8.	Troubleshooting.....	21
6.	Operation	23
6.1.	Handling products with installed reed switch.....	23
6.2.	Changing the container	23
6.2.1.	<i>Container with clamping cone attachment</i>	24
6.2.2.	<i>Container with fastening screw cap</i>	24
7.	Maintenance	25
7.1.	Repair.....	25
7.2.	Component exchange	26
7.2.1.	<i>Hose connector</i>	26
7.2.2.	<i>Clamping cone</i>	26
7.2.3.	<i>Snap ring</i>	27
7.2.4.	<i>Filter sieve</i>	27
7.2.5.	<i>Float</i>	27
7.2.6.	<i>Ball and ball valve</i>	28
7.3.	Unauthorised repair activities	28
7.4.	Dismantling / disposal	28
8.	Accessories and spare parts list	29

1. General

- Carefully read through the Instruction manual before starting work.
- Observe the relevant health and safety and accident prevention regulations.
- If you do not understand this Instruction manual or parts of it, please ask us.
- Observe warnings to avoid hazards for personnel, the environment or the product.
- When passing on or selling the product, enclose this Instruction manual because it is part of the product.
- Observe the Instruction manual and other information about the eloLance, and store these materials in a safe, readily accessible location for the entire service life.
- When using specific variants, the technical data according to the data sheet apply. Please request the corresponding data sheets.
- Always adhere to the regulations, instructions and safety information applicable to the place of installation prior to placing in service and during operation. Make the Instruction manual available to the person who installs or maintains the product.
- The Instruction manual must be kept to hand, in a legible condition.

1.1. Signs and symbols

- ❗ Information symbol: Refers to effective and practical use of the product.
- ▶ Action step: Prompts an action.
 - *Information regarding the action step and intermediate result of the action*
- ✓ **Result of action**
- (1) Item number: Refers to an item number in a figure.
 - List

1.2. Article key and designation

elobau suction lances are defined and specified by an 11-character code. The key can be broken down as follows:

- 1. - 3.: Series (e.g. SL2)
- 4.: Output signal type ("D" for digital, "R" for resistance)
- 5.: Number of switching points (SL2D) or classification of the value range of the resistance signal (SL2R)
- 6.: Material allocation (e.g. PVC)
- 7. - 11.: Consecutive sequence number

For examples of the item key, see the next page.



Figure 1

1.2.1. Article key SL2D...

1	2	3	4	5	6	7	8	9	10	11	
											Series
S	L	2									Suction lance SL2
											Output signal type
			D								Digital
				1							1 switching point
				2							2 switching points
											Base housing material
					0						PVC
											Sequence number
						X	X	X	X	X	

1.2.2. Article key SL2R...

1	2	3	4	5	6	7	8	9	10	11	
											Series
S	L	2									Suction lance SL2
											Output signal type
			R								Resistance
				X							Resistance signal value range
											Base housing material
					0						PVC
											Sequence number
						X	X	X	X	X	

1.3. Chemical resistance

The suction lance was tested with following chemicals. However, the plastic parts used are often subject to influences which cannot be seen in laboratory tests (temperature, pressure, material stresses, influence of chemical substances, design characteristics, etc.). Chemical and mechanical resistance alone is not sufficient for the usability of a product. When using the eloLance, ensure that the eloLance materials are suitable for the media used and are chemically resistant.

- Also take the regulations for combustible liquids (Ex-protection) into account.

A legal claim cannot be derived from this information, we exclude any guarantee and liability.

Chemical list	
Chlorine cleaner	Hydrochloric acid
AdBlue (DEF)	Washing solution
Sodium hydroxide, potassium hydroxide	Sodium hydroxide, potassium hydroxide, sodium hypochlorite solution 1 – 5 %
Oxyran, methyl, polymer with oxyran monoisotridecyl ether, block	

1.4. Liability exclusion

We accept no responsibility for damage or interruption to operations:

- Non-compliance with this Instruction manual.
- If spare parts or accessories are used that have not been approved by the manufacturer.
- Unauthorised repairs, conversions and modifications that are not described in this Instruction manual.

1.5. Manufacturer



sustainable solutions

elobau GmbH & Co. KG

Zeppelinstraße 44

D-88299 Leutkirch

+49-7561-970-0

Web: www.elobau.de

E-Mail: info@elobau.com

1.6. Warranty



Information

All eloLance undergo function checks prior to dispatch.

This product has a warranty of 24 months beginning at the time of transfer of risk. Defects in the form of material or manufacturing defects that occur during this warranty period shall be rectified free of charge either by repair or replacement.

To the extent permitted by law, other claims for compensation are excluded. The warranty does not apply in the event of third-party interference or dismantling by a third party without our prior consent. The warranty is void in the case of deliberate damage or incorrect handling. If a warranty is provided, the warranty period is not extended. We reserve the right to charge for costs resulting from unjustified claims, e.g. installation or operating errors.

2. Safety

2.1. Intended use

The eloLance is intended solely for the removal of liquid media from containers such as canisters, drums or similar.

Parts that come into contact with media must be sufficiently chemically resistant against the medium. The eloLance is designed solely for its intended use in the industrial sector.

- ▶ Check whether the ordered variant is suitable for the application.

Every non-intended use and all activities performed on the eloLance that are not described in this manual represent a prohibited, incorrect use outside the legal limits of liability of the manufacturer.

Only operate the eloLance when it is in a faultless condition and with the original parts installed. Observe all applicable health and safety conditions, laws and directives.

2.2. Reasonably foreseeable misuse

In the event of incorrect use, hazards can arise for persons or property. A foreseeable misuse is, for example:

- Shortening the length of the eloLance,
- Using the eloLance as a handle for containers,
- Lifting the eloLance by a cable or hose,
- Applying pressure to the eloLance,
- Opening the basic housing, loosening the cable gland or making structural changes,
- Using the eloLance in heavily contaminated or crystallising media,
- Operating the eloLance outside the defined installation position,
- Subjecting the eloLance to high mechanical loads (e.g. levering / bending movements or impacts),
- A failure to comply with technical data.

2.3. Target applications / areas of application

- Professional dishwashers
- Professional washing machines
- Car washes
- Cleaning technology (general)
- Dosing pumps, dosing technology and dosing systems
- General: Applications in an industrial environment

2.4. Definition of personnel groups

2.4.1. *Qualification and training*

These Instruction manual are intended equally for the user and maintenance personnel, as well as for the operator. Adequately trained and responsible personnel are a prerequisite for optimum, trouble-free and safe use of the product.

2.4.2. *User / operating and maintenance personnel*

This includes all persons who are responsible for the installation, operation, set-up times, maintenance work (including cleaning) and troubleshooting on behalf of the operator/contractor. Personnel tasked with operation and maintenance must be appropriately qualified for this work. The area of responsibility, competence and supervision of personnel must be precisely regulated by the operator. If personnel do not possess the requisite knowledge, the operator must provide training and instruction. If necessary, this can be provided by the manufacturer or supplier on behalf of the operator.

2.4.3. *Operator/contractor*

They assign responsibilities to the personnel, and issue instructions and briefings that are required for the intended use of the product. The operator must ensure that the contents of the Instruction manual are fully understood by the personnel.

2.5. Signal words

The severity of the hazard and its consequences are classified in the Instruction manual with the following signal words and colours.



Warning

- Indicates a potentially dangerous situation. If not avoided, death or severe injuries may result.
-



Caution

- Indicates a potentially dangerous situation. If not avoided, light or minor injuries may result.
-



Notice

- Indicates a potentially dangerous situation. If not avoided, property damage may result.
-

2.6. Pictograms

These pictograms are used in this Instruction manual where necessary.



Warning of dangerous electrical voltage

- This warning sign indicates activities where there is a risk of electric shock, possibly with fatal consequences.
-

2.7. Conformity

The eloLance conforms to the state of the art plus the applicable safety conditions at the time of bringing into circulation within the scope of its intended use.

From a design point of view, reasonably foreseeable misuse cannot be avoided without limiting the intended functionality.

2.8. Changes/modification

Any unauthorised change or modification is expressly forbidden. The activities described in this Instruction manual are excluded from this.

3. Transport/storage

3.1. General notes

- Only transport and store the eloLance in the designated transport material.
- During transport, protect the eloLance against impacts and severe shocks.



Damage due to chemical residues!

- ▶ Only store and transport the eloLance when it is emptied and cleaned.
-

During storage protect the eloLance against heat, moisture, chemicals and impacts. The owner is responsible for damage and personal injuries.

4. Technical data



Information

Before using the eloLance, read the following technical data and observe this during installation, repair and maintenance.

4.1. Mechanical specifications

Available length variants for SL2D... and SL2R... in the range 260 mm ... 1,500 mm. See variable "L1" in Figure 2 or Figure 3.

4.1.1. SL2D1... / SL2D2...

Dimensions and material specifications for SL2D1... / SL2D2...

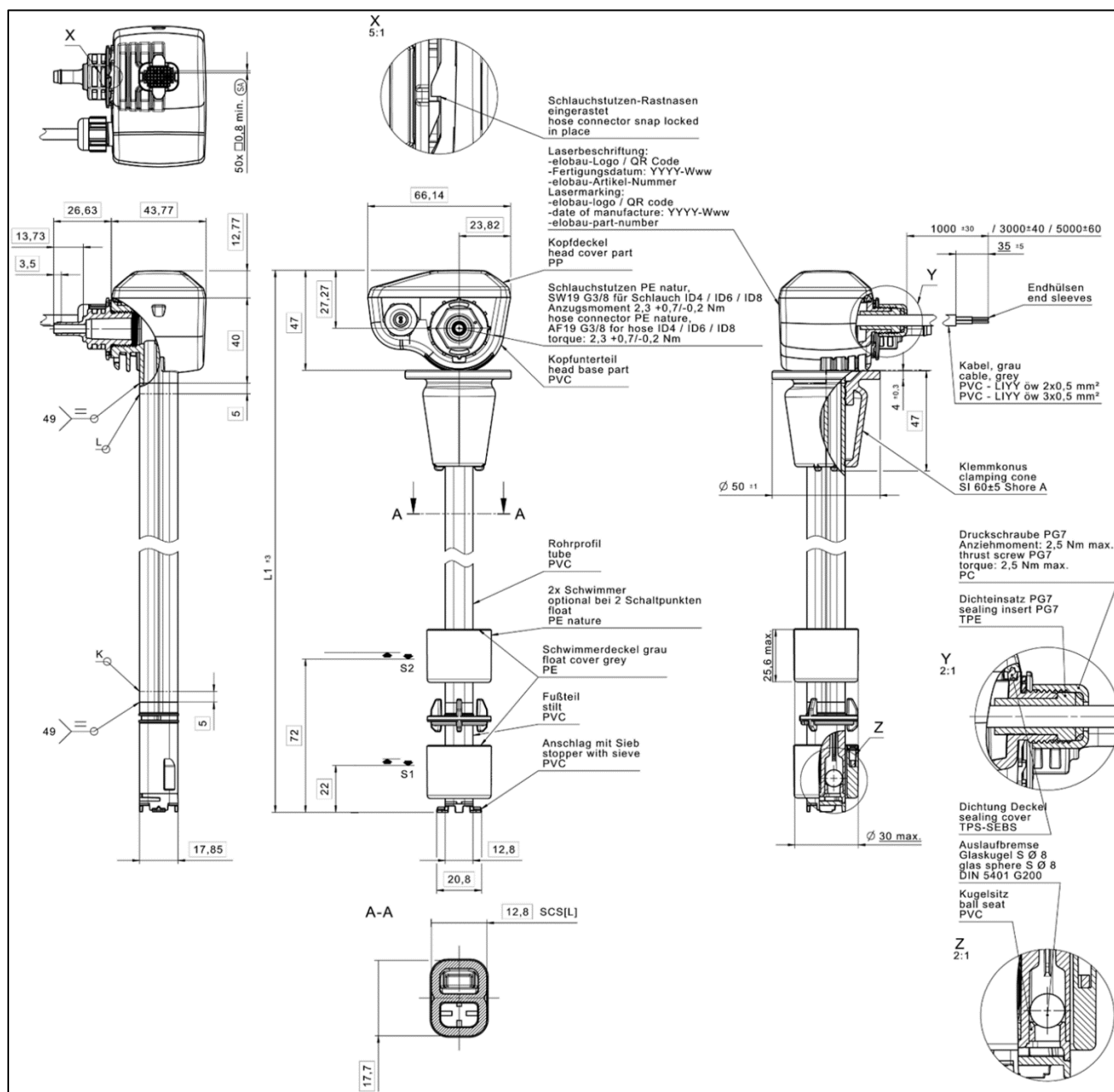


Figure 2

4.1.2. SL2R...

Dimensions and material specifications for SL2R...

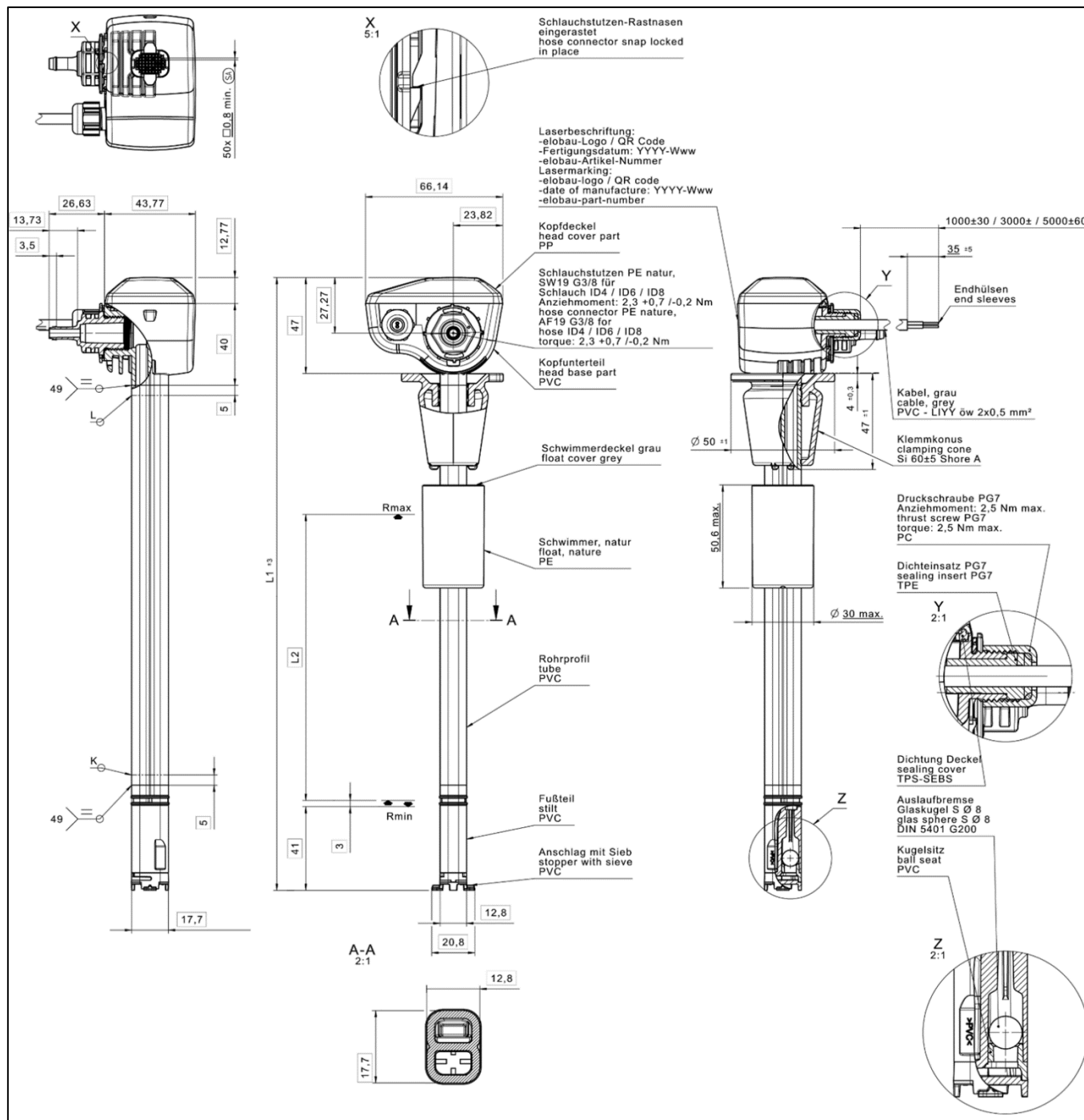


Figure 3

4.2. Electrical data

4.2.1. SL2D1...

Switching function with medium falling (S1)	NOC (A)	NCC (B)	Changeover contact (C)
Circuit diagram			
Switching voltage	< 48 V	< 48 V	< 48 V
Switching current	max. 0.5 A	max. 0.5 A	max. 0.25 A
Switching capacity	max. 10 W/VA	max. 10 W/VA	max. 5 W/VA
Switching point height S1	22 mm	22 mm	22 mm
Definition of the switching point height	Switching point height in the medium at density 1 g/mm ³ falling level ↓		

4.2.2. SL2D2...

Switching function with medium falling (S1/S2)	NO contact / NO contact (A/A)	NC contact / NO contact (B/A)	NC contact / NC contact (B/B)	NO contact / NC contact (A/B)
Circuit diagram				
Switching voltage	< 48 V	< 48 V	< 48 V	< 48 V
Switching current	max. 0.5 A	max. 0.5 A	max. 0.25 A	max. 0.25 A
Switching capacity	max. 10 W/VA	max. 10 W/VA	max. 5 W/VA	max. 5 W/VA
Switching point height S1	22 mm	22 mm	22 mm	22 mm
Switching point height S2	72 mm	72 mm	72 mm	72 mm
Definition of the switching point height	Switching point height in the medium at density 1 g/mm ³ falling level ↓			

4.2.3. SL2R...

Resistance range	Value of E96 series single resistor
Circuit diagram	<p>basic resistance</p>
Switching voltage	< 48 V
Switching current	0.5 A
Switching capacity	0.1 W/VA
Pv resistance	P70 0.1 W +/-1%
Power loss	Pv empty max. of the individual resistors must not be exceeded.
Switching point height R _{min}	41 mm
<p>Definition of the switching point height</p> <p>Switching distances from R_{min} - R_{max} (grid) = 20 mm</p> <p>R_{min} ↓ / R_{max} ↑ = Switching point height in the medium at density 1 g/mm³</p>	

4.3. Environmental and operating conditions

4.3.1. SL2D1... / SL2D2...

Operating temperature range	+5°C to +60°C	
Storage temperature range	-20°C to +60°C	
Protection class	Head section	IP65 DIN EN 60529
	From lower edge of head section	IPX8 DIN EN 60529
Ball leakage brake discharge quantity	30 ± 25ml	Reference height: 1 m Test duration: 1 min Reference medium: Water
Mounting position	Max. installation inclination 30°	At max. density 1.264 g/cm ³
Hose connector seal	1 bar, 10 min, water bath test, no air bubbles permitted	

4.3.2. SL2DR...

Operating temperature range	+5°C to +60°C	
Storage temperature range	-20°C to +60°C	
Protection class	Head section	IP65 DIN EN 60529
	From lower edge of head section	IPX8 DIN EN 60529
Ball leakage brake discharge quantity	30 ± 25ml	Reference height: 1 m Test duration: 1 min Reference medium: Water
Mounting position	Max. installation inclination 30°	At max. density 1.264 g/cm ³
Hose connector seal	1 bar, 10 min, water bath test, no air bubbles permitted	

4.4. Definition of the components

4.4.1. Exploded view SL2D1... / SL2D2...

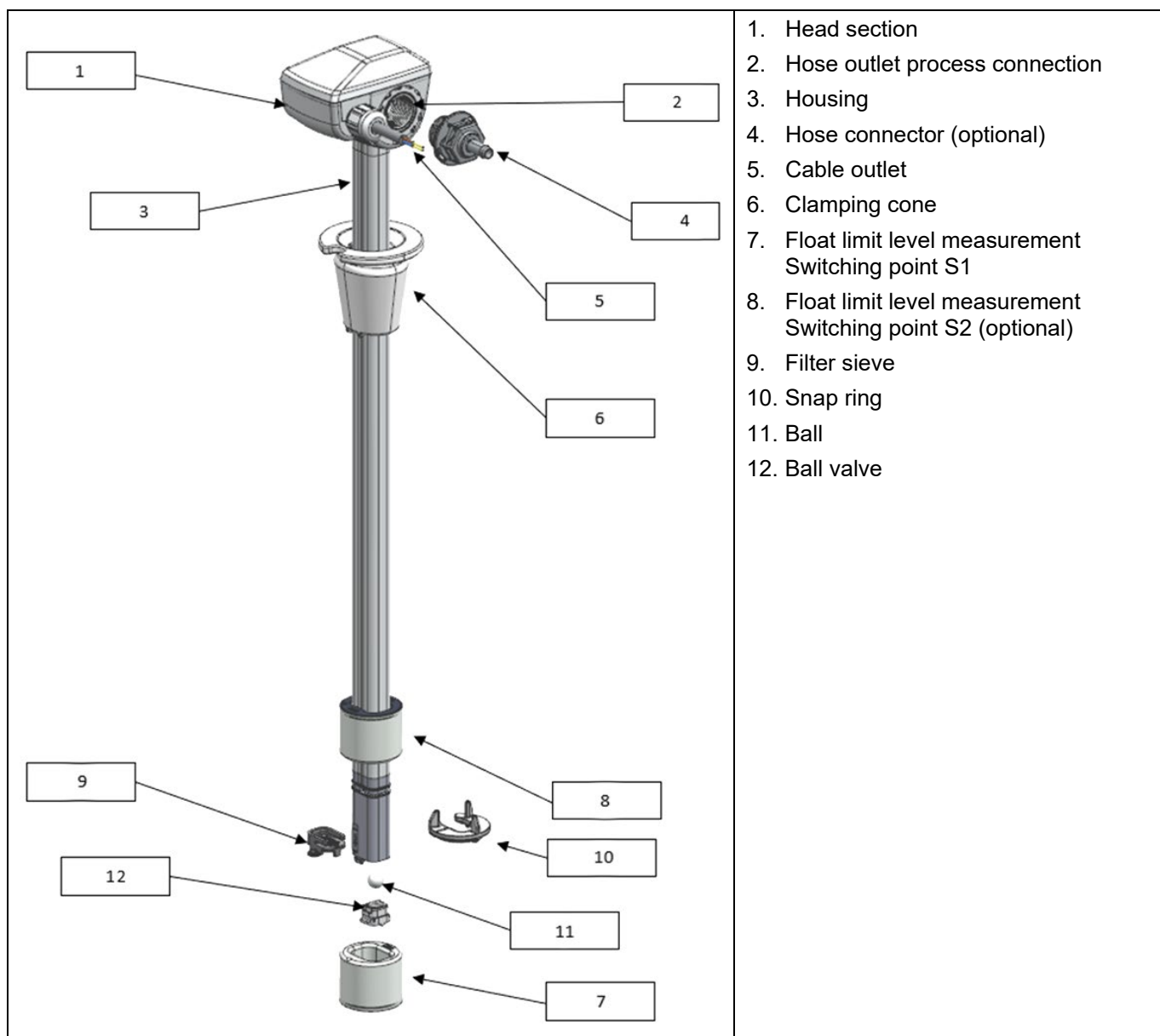


Figure 4

4.4.2. Exploded view SL2R...

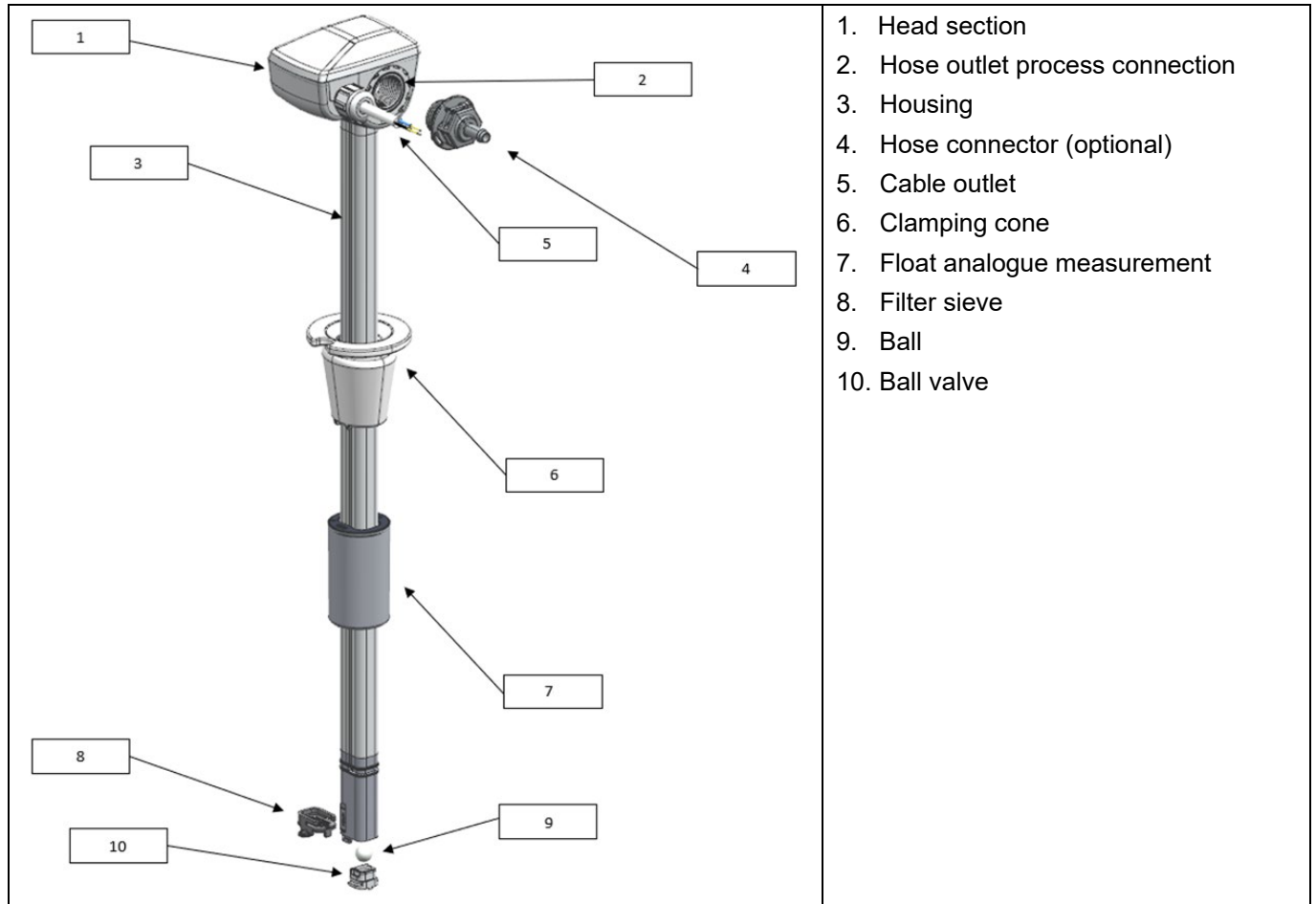


Figure 5

4.4.3. Hose outlet process connection



Note:

We recommend a tightening torque of 2.3 Nm -0.2 Nm/+0.7 Nm. When the tightening torque is reached, continue turning the hose connector to the next secure locking lug in the tightening direction (3). Ensure that the locking lugs engage correctly (see Figure 6).

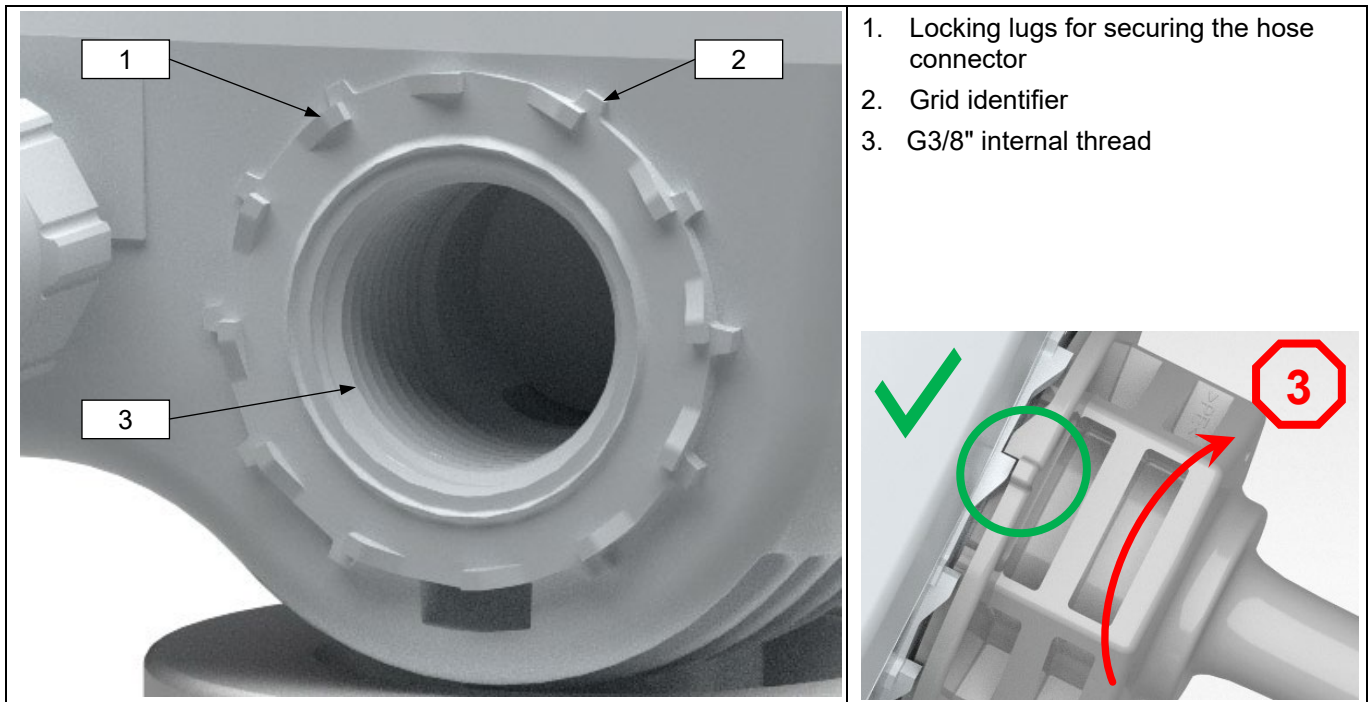
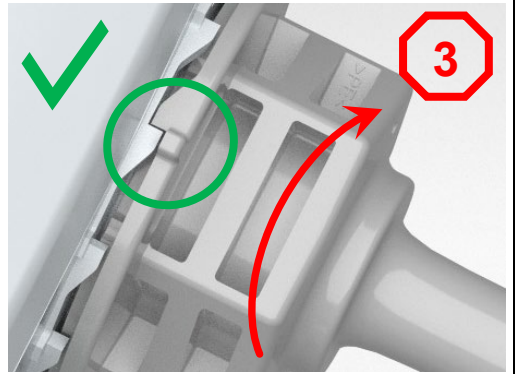


Figure 6

1. Locking lugs for securing the hose connector
2. Grid identifier
3. G3/8" internal thread



4.4.4. Clamping cone

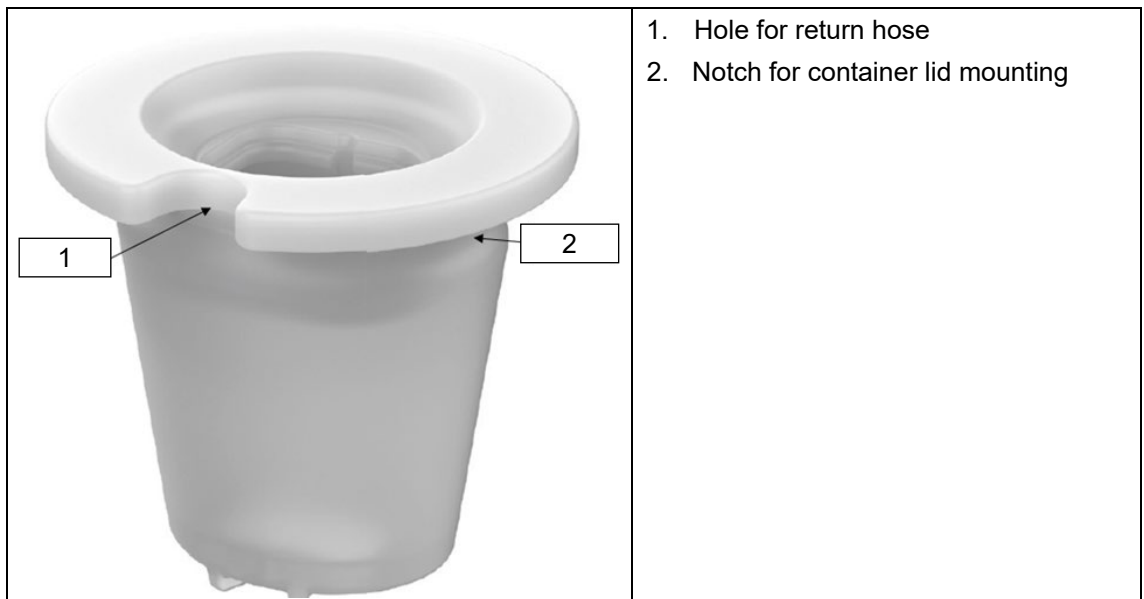


Figure 7

1. Hole for return hose
2. Notch for container lid mounting

5. Installation and putting into service

5.1. Method of operation

The float (Figure 4, item 7 and item 8 as well as Figure 5, item 7) with integrated magnet moves up and down depending on the fill level. This activates a reed switch. Depending on the switching function of the reed switch, the signal is output either on a rising or falling level.

eloLance SL2D1 variants have a float (Figure 4, item 7), e.g. for the empty message of a container. eloLance SL2D2 variants have 2 floats (Figure 4, item 7 and item 8), e.g. for the pre-empty and empty signal of a container.

eloLance SL2R variants have a continuous level measurement with an extended measuring range, which is detected by means of a float (Figure 5, item 7) and reed grid.

The integrated filter sieve (Figure 4, item 9 and Figure 5, item 8) ensures that the eloLance and the attached system are protected from coarse foreign bodies and impurities.

The ball leakage brake consists of a freely movable ball (Figure 4, item 11 and Figure 5, item 9) and the ball valve (Figure 4, item 12 and Figure 5, item 10). The ball leakage brake prevents larger quantities from discharging after the eloLance has been removed from the container.

5.2. Installation

Make the Instruction manual available to the person installing the product.

- ▶ Check the eloLance, suction hose and lead for damage.



Warning

Danger due to pressurised media!

Escaping media can result in severe injuries.

- ▶ Ensure that the system is depressurised before the eloLance is installed/removed.
 - ▶ Check the container level.
 - ▶ If necessary, wear personal protective equipment (safety gloves, safety glasses).
 - ▶ Capture any escaping media in a suitable vessel.
-



Warning

Danger to people, environment and machine due to chemicals!

Escaping media can cause serious injuries and damage to the machine or the environment.

- ▶ Observe the safety data sheet of the medium.
 - ▶ Wear appropriate personal protective equipment if necessary.
 - ▶ Protect against possible emissions (vapours, liquids)!
-



Notice

Danger due to incorrect installation

The eloLance is damaged by shortening!

It may be damaged by impacts and vibrations!

- ▶ Adhere to the installation tolerances and installation location!
-

5.3. Before commissioning

The eloLance is connected to a hose (not included in the scope of delivery) and the downstream system (e.g. dosing pump) at the head section by means of a hose connector (Figure 4 and Figure 5, item 4).

Once the connection is established, the eloLance can be placed directly into the container and fixed with the clamping cone (Figure 7). For larger container openings, a hole with a diameter of $\varnothing 30+1$ mm can be made in the container lid. The notch in the clamping cone (Figure 7, item 2) serves to stabilise the eloLance in the container and can be screwed onto the container together with the container lid. (See chapter 5.4.4 Mounting the container lid on the clamping cone).

Optionally, a hose connection material available on the market can be fitted to the 3/8" thread (Figure 6, item 2) of the head section.

5.4. Mechanical connection

5.4.1. Scope of delivery

The scope of delivery of the eloLance includes all parts listed in assembled condition in chapter 4.4 Definition of the components. Only the hose connector is optional and must be additionally ordered in the desired size if required. (See also chapter 8 Accessories and spare parts list). Pre-assembled hose connectors ex works must not be retightened. Loosening is only permissible when replacing. Read the procedure for this in chapter 5.4.2 Assembly and disassembly of the hose connector, page 17.

5.4.2. Assembly and disassembly of the hose connector

Original elobau hose connectors are available for the G3/8" thread (Figure 6, item 2). These can be acquired separately as accessories in different sizes. (See chapter 8 Accessories and spare parts list).

Fitting the hose connector

- ▶ Insert the hose connector (Figure 4 and Figure 5, item 4) into the G3/8" thread. Observe the tightening torque of 2.3 Nm -0.2 Nm/+0.7 Nm to ensure leak-tightness.
 - *Hose connector must engage as per Figure 6. If this is not the case, continue screwing in the hose connector in the tightening direction until the hose connector visibly engages with the next locking lug on the housing (see Figure 6).*
- ✓ **Hose connector is mounted.**

The original hose connectors can be dismantled, e.g. in case of maintenance or when using hose connection material from other suppliers. During disassembly, dispose of old hose connectors as per the respective national regulations and use new hose connectors.

Dismantling the hose connector

- ▶ Loosen and unscrew the hose connector with a suitable tool.
 - *Disassembled hose connectors are not suitable for reassembly.*
- ✓ **The hose connector is removed.**

5.4.3. Hose installation

Prerequisite: elobau hose connector installed.

Mounting the hose on the hose connector

- ▶ Attach the hose to the optionally available or pre-assembled hose connector.
 - *The diameter of the hose must fit the hose connector.*
 - ▶ Press the hose onto the connector nozzle.
 - *If necessary, use additional fastening material to hold the hose on the hose connector (e.g. hose clamp). Avoid crushing or kinking the hose and hose connector.*
 - ▶ Check that it is securely seated.
- ✓ **Hose is mounted on hose connector.**

Hose connection material from other suppliers can be fitted in the G3/8" thread (Figure 6, item 2). A prerequisite is removal of the elobau hose connector. Read the procedure for this in chapter 5.4.2 Assembly and disassembly of the hose connector.

Mounting the hose on third-party hose connection material

- ▶ Observe the instructions of the supplier of the connection material.
 - ▶ Attach the hose to the third-party hose connection.
 - *The diameter of the hose must fit the hose connector.*
 - ▶ Press the hose onto the connector nozzle.
 - *If necessary, use additional fastening material (e.g. hose clamp) to hold the hose on the hose connector. Avoid crushing or kinking the hose and hose connector.*
 - ▶ Check that it is securely seated.
 - ▶ Ensure an appropriate seal.
 - *The eloLance has a sealing surface where appropriate sealing material can be used. The user is responsible for leak-tightness.*
- ✓ **Hose is mounted on third-party hose connection material.**



Information

When using third-party hose connection material, be aware that the thread is only similar to G3/8. In principle, commercially available G3/8 connections with a seal can be used. In individual cases, check the connections for fit and leak-tightness and observe the recommended tightening torque of max. 2.3 Nm -0.2 Nm/+0.7 Nm.

5.4.4. Mounting the container lid on the clamping cone

The clamping cone (Figure 7) has a multifunctional design and can be used in combination with a conventional container lid to mount the eloLance.

Mounting the container lid on the clamping cone

- ▶ Drill a hole with diameter 30 +1 mm centrally in the lid. The lid is not included in the scope of delivery.
 - ▶ Carefully pull the container lid from below over the float and snap ring.
 - ▶ Hold the clamping cone and push on the container lid until it is securely seated in the circumferential notch (Figure 7, item 2) of the clamping cone.
 - ▶ If there is a return hose, another hole can be made in the container lid in the size of the return hose.
 - *The hole on the clamping cone (Figure 7, item 1) serves as a hose feed-through.*
- ✓ **Container lid on clamping cone is mounted.**
- *The eloLance can now be connected to the container.*

5.4.5. Mounting the eloLance with container lid in container

Prerequisite: Mounted container lid on the clamping cone (Figure 7).

Inserting the eloLance with container lid in container (assembly / height adjustment)

- ▶ Insert the eloLance in the container.
- ▶ Push the clamping cone with the container lid onto the container opening.

- ▶ Hold the eloLance by the head section (Figure 4 and Figure 5, item 1) and screw the container lid tightly to the container thread.
- ▶ Hold the eloLance by the head section and push it into the desired position (height adjustment).
- ✓ **eloLance is mounted in container.**

5.4.6. Mounting the eloLance with clamping cone

The clamping function is suitable for container openings with diameters between 30 mm and 37 mm. Larger container openings require mounting with container lid.

Inserting the eloLance with clamping cone in container (assembly / height adjustment)

- ▶ Insert the eloLance in the container.
- ▶ Push the clamping cone into the container opening and clamp it securely.
- ▶ Hold the eloLance by the head section (Figure 4 and Figure 5, item 1) and push it into the desired position (height adjustment).
- ✓ **eloLance is mounted in container.**

5.5. Electrical connection



Warning

Warning of dangerous electrical voltage!

The following work may only be carried out by an authorised electrician!

- ▶ Before carrying out any work on electrical lines, they must be disconnected from the power supply and secured against being switched on again.
 - ▶ Comply with the electrical data according to chapter 4.2 Electrical data.
-

Establishing the eloLance electrical connection

- ▶ Comply with the electrical data according to chapter 4.2 Electrical data.
- ▶ Check and ensure the connections are in a voltage-free condition.
- ▶ Connect the eloLance according to the wire colours/connector assignment.
- ▶ Route the cables so that no damage can occur.
- ✓ **eloLance is electrically connected.**

5.6. Reversing the switching function by turning the float

This function only applies to the eloLance variants SL2D... (S1).

General

By turning the float (Figure 8, item 2) through 180°, the switching function normally open to normally closed or normally closed to normally open can be subsequently inverted. Only the switching function normally open or normally closed can be inverted.

- ▶ Check whether this function is available for this variant.
 - *Only the float at the empty signal switching point (S1) can be turned. This function is not possible with the float (Figure 8, item 2) of the pre-empty switching point (S2).*

Colour coding of the float lid

The respective switching function selected can be identified by the colour marking of the float (Figure 8, item 2):

- Position 1: Coloured lid points upwards → NO contact, falling
- Position 2: Coloured lid points downwards → NC contact, falling



Information

Turning the switching point is only possible with SL2D... S1!

Inverting the switching function

- ▶ Release the filter sieve (1) at the side.
- ▶ Pull out the filter sieve straight and parallel to the eloLance.
- ▶ Pull out the float (2), turn it 180° (upside down) and push it back onto the suction lance.
- ▶ Insert the filter sieve at the side.
 - *Check that it is securely seated.*
- ▶ Check electrical function in the application.
- ▶ Document the change.
- ✓ **The switching function has been changed.**

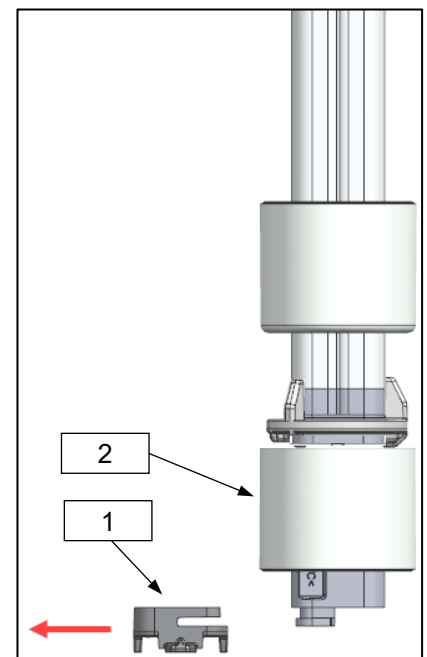


Figure 8

5.7. Putting into service

Putting the eloLance into operation

- ▶ Ensure that the electrical specifications are adhered to.
- ▶ Check the intactness of the sensor lead and housing parts.
- ▶ Apply the operating voltage.
- ▶ Check the function of the eloLance according to the application.
- ✓ **eloLance is ready for operation.**

5.8. Troubleshooting

Error	Variant	Possible cause	Error correction
No signal/incorrect signal	SL2D... SL2R...	Float sticks (float/pipe). Due to hardened liquid residues on the suction lance for example.	Clean level tube and float.
		Float sticks (float/container wall).	Check that the suction lance is correctly seated in the container. Make sure that the float of the suction lance does not touch the container wall.
		The inclination (tilt angle) of the suction lance is too high. This means that the float can no longer move.	Reduce inclination accordingly.
		Density of the medium too low (float has no buoyancy).	Operate suction lance in suitable medium.
		Ferritic objects are in the immediate vicinity of the float.	Keep ferritic objects out of the immediate vicinity of the float.
		External magnetic field in the area of the suction lance.	Shield the suction lance Remove/suppress the external magnetic field.
		Float mounted the wrong way round.	Rotate float through 180°. (See chapter 0 Reversing the switching function by turning the float).
	Connection cable incorrectly connected.	Connect connection cable as per 4.2 Electrical data.	
	SL2D...	Snap ring slipping, lower/upper float is therefore no longer held.	Check that the snap ring is correctly seated and replace if damaged.
Poor suction performance	SL2D... SL2R...	Filter sieve, ball, suction pipe, hose connector dirty.	Clean components and replace if necessary. See chapter 7.2 Component exchange.
		Suction hose (not supplied) is dirty or kinked.	Clean/replace the suction hose or protect it from kinking.

Error	Variant	Possible cause	Error correction
Leak at the hose connection (hose connection on suction lance thread).	SL2D... SL2R...	When using elobau hose connectors: Wrong torque used during exchange.	Use torque according to Figure 2 or Figure 3.
		When using elobau hose connectors: Used hose connector used during exchange.	Use a new hose connector.
		When using third-party connection material: Incorrect/inadequate sealing material used.	Use appropriate sealing material.
Leak at the hose connection (hose connection on hose).	SL2D... SL2R...	When using elobau hose connectors: Hose does not sit correctly on hose connector.	Ensure correct assembly, use additional securing material if necessary.
eloLance floats up in the container.	SL2D... SL2R...	Suction lance is not sufficiently fixed in the container.	Ensure correct container assembly.

6. Operation

6.1. Handling products with installed reed switch

Reed switches are installed in the eloLance, which react sensitively to shock and impact. Reed switches consist of sensitive parts including a glass body, which can be damaged by an impact or shock.



Notice

- ▶ The eloLance must not be subjected to shock and impact loads (e.g. falling down). Shock and impact loads can cause immediate failure or preliminary damage that can result in subsequent failure.
 - ▶ If in doubt, replace the eloLance.
-



Information

The warranty does not apply to damage caused by impact and shock loads.

6.2. Changing the container



Warning

Danger due to pressurised media!

Escaping media can result in severe injuries.

- ▶ Ensure that the system is depressurised before the eloLance is installed/removed.
 - ▶ Check the container level.
 - ▶ If necessary, wear personal protective equipment (safety gloves, safety glasses).
 - ▶ Capture any escaping media in a suitable vessel.
-



Warning

Danger to people, environment and machine due to chemicals!

Escaping media can cause serious injuries and damage to the machine or the environment.

- ▶ Observe the safety data sheet of the medium.
 - ▶ Wear appropriate personal protective equipment if necessary.
 - ▶ Protect against possible emissions (vapours, liquids)!
-

6.2.1. **Container with clamping cone attachment**

Changing container with clamping cone

- ▶ Only hold eloLance by the head section.
 - *Do not grab or pull on the hose or cable.*
 - ▶ Carefully remove the eloLance from the container.
 - *Make sure that the float does not get caught on the container opening when removing it.*
 - ▶ Provide new container in a stable position.
 - ▶ Insert the eloLance in the container.
 - ▶ Push the clamping cone into the container opening and clamp it securely.
 - ▶ Hold the eloLance by the head section and push it into the desired position (height adjustment).
- ✓ **Container with clamping cone fastening has been changed.**

6.2.2. **Container with fastening screw cap**

Changing container with screw cap

- ▶ Take hold of the eloLance by the head section.
 - *Do not grab or pull on hose or cable.*
 - ▶ Loosen the container screw connection on the container.
 - ▶ Carefully remove the eloLance from the container.
 - *Make sure that the float does not get caught on the container opening when removing it.*
 - ▶ Provide new container in a stable position.
 - ▶ Insert the eloLance in the container.
 - ▶ Push the clamping cone with the container lid onto the container opening.
 - ▶ Hold the eloLance by the head section and screw the container lid tightly to the container thread.
 - ▶ Hold the eloLance by the head section and push it into the desired position (height adjustment).
- ✓ **Container with screw cap fastening has been changed.**

7. Maintenance

Maintenance intervals are dependent on the medium used and must be specified by the operator. The following activities are recommended by elobau during maintenance:

- ▶ Check the eloLance visually and check operation.
- ▶ Check that the eloLance is securely mounted and leak-tight.
- ▶ Check the connection leads and suction hose for damage.
- ▶ Clean the housing, float and other components if they are dirty.

7.1. Repair



Warning

Danger due to pressurised media!

Escaping media can result in severe injuries.

- ▶ Ensure that the system is depressurised before the eloLance is installed/removed.
 - ▶ Check the container level.
 - ▶ If necessary, wear personal protective equipment (safety gloves, safety glasses).
 - ▶ Capture any escaping media in a suitable vessel.
-



Warning

Danger to people, environment and machine due to chemicals!

Escaping media can cause serious injuries and damage to the machine or the environment.

- ▶ Observe the safety data sheet of the medium.
 - ▶ Wear appropriate personal protective equipment if necessary.
 - ▶ Protect against possible emissions (vapours, liquids)!
-



Information

Warranty claims against the manufacturer will not be met if unauthorised spare parts are used.

7.2. Component exchange

7.2.1. Hose connector

Dismantling the hose connector

- ▶ Loosen and unscrew the hose connector with a suitable tool.
- *Disassembled hose connectors are not suitable for reassembly.*
- ✓ **Hose connector dismantled.**

Fitting the hose connector

- ▶ Insert the hose connector into the 3/8" thread.
- *Observe the tightening torque of 2.3 Nm -0.2 Nm/+0.7 Nm to ensure leak-tightness.*
- *Hose connector must engage as per Figure 6. If this is not the case, continue screwing in the hose connector in the tightening direction until the hose connector visibly engages with the next locking lug on the housing.*
- ✓ **Hose connector mounted.**

7.2.2. Clamping cone

Replacing the clamping cone

- ▶ Pull out the filter sieve sideways (item 1).
- *Pull out the filter sieve straight and parallel to the eLoL-ance. (see 7.2.4 Filter sieve)*
- ▶ Pull out the lower float (item 2) downwards.
- ▶ Pull off the snap ring (item 3) from the side (only variant SL2D..., see chapter 7.2.3 Snap ring)
- ▶ Pull out the upper float (item 4) downwards.
- *During the subsequent disassembly of the clamping cone, make sure that the ball valve (item 5) is not accidentally pulled out.*
- ▶ Pull out the clamping cone (item 6) downwards.
- ▶ Fit a new clamping cone.
- ▶ Reassemble the parts in reverse order.
- *Make sure that the snap ring and float are fitted correctly.*
- ✓ **Clamping cone replaced.**

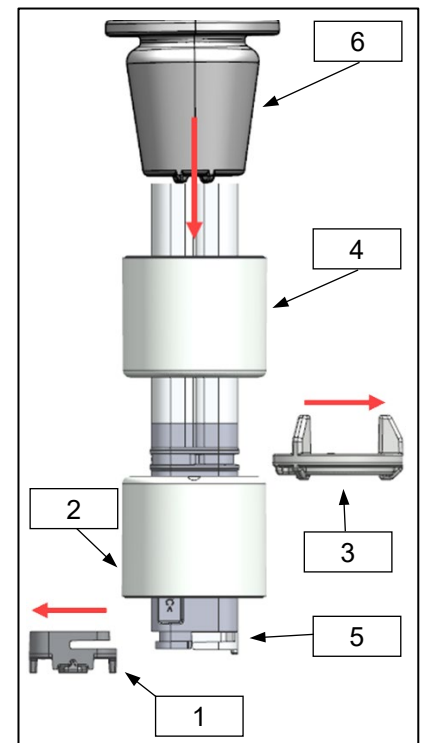


Figure 9

7.2.3. Snap ring

Only applies to variants SL2D...

Replacing the snap ring

- ▶ Pull off the defective snap ring (Figure 9, item 3) to the side.
- ▶ Insert the new snap ring sideways into the notch.
 - *Make sure that the snap ring is fitted correctly! The marking on the pipe must be visible at the opening of the snap ring. (see Figure 10)*
- ✓ **Snap ring replaced.**



Figure 10

7.2.4. Filter sieve

Replacing the filter sieve

- ▶ Pull out the filter sieve (Figure 9, item 1) to the side.
 - *Pull out the filter sieve straight and parallel to the eloLance.*
- ▶ Insert the filter sieve at the side.
- ✓ **Filter sieve replaced.**

7.2.5. Float

Replacing the float

- ▶ Pull out the filter sieve (Figure 11, item 1) to the side.
 - *Pull out the filter sieve straight and parallel to the eloLance. (see 7.2.4 Filter sieve)*
- ▶ Pull out the lower float (Figure 11, item 2) downwards
- ▶ Pull off the snap ring (item 3) from the side (only variant SL2D..., see chapter 7.2.3 Snap ring)
- ▶ Pull out the upper float (item 4) downwards.
- ▶ Reinstall the new float in reverse order.
 - *Ensure correct assembly of the snap ring and float!*
- ▶ Test functionality before using the eloLance.
- ✓ **Float replaced.**

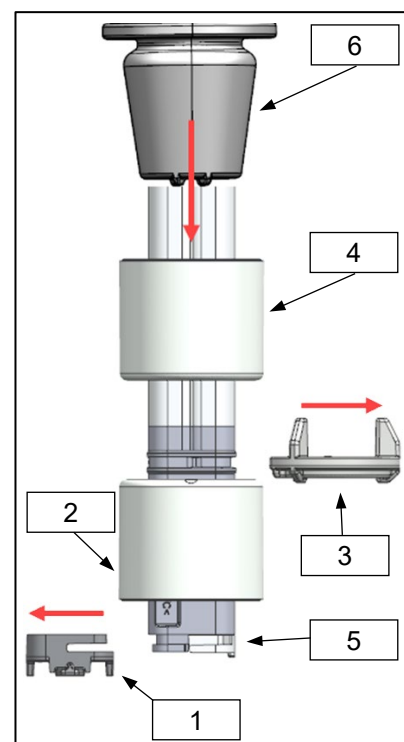


Figure 11

7.2.6. Ball and ball valve

Replacing the ball and ball valve

- ▶ Pull out the filter sieve (item 1) to the side.
 - *Pull out the filter sieve straight and parallel to the eloLance.* (see 7.2.4 Filter sieve)
- ▶ Remove the ball valve (item 2) and ball (item 3) downwards.
- ▶ Reinstall new ball and ball valve in reverse order.
- ✓ **Ball and ball valve replaced.**

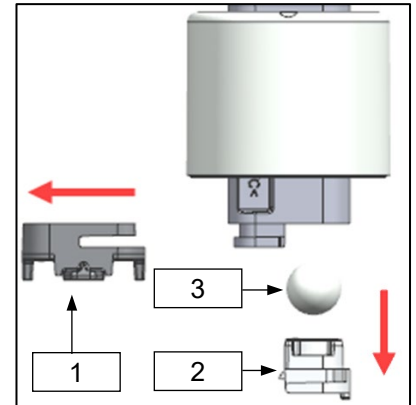


Figure 12

7.3. Unauthorised repair activities



Information

The following repair activities are not permitted and will void the warranty:

- ▶ Open the head section (Figure 4 and Figure 5, item 1).
- ▶ Open the cable gland.

7.4. Dismantling / disposal



Warning

Danger due to pressurised media!

Escaping media can result in severe injuries.

- ▶ Ensure that the system is depressurised before the eloLance is installed/removed.
 - ▶ Check the container level.
 - ▶ If necessary, wear personal protective equipment (safety gloves, safety glasses).
 - ▶ Capture any escaping media in a suitable vessel.
-



Warning

Danger to people, environment and machine due to chemicals!

Escaping media can cause serious injuries and damage to the machine or the environment.

- ▶ Observe the safety data sheet of the medium.
 - ▶ Wear appropriate personal protective equipment if necessary.
 - ▶ Protect against possible emissions (vapours, liquids)!
-

Dismantling the eloLance





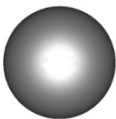
- ▶ Check and ensure a voltage-free and pressure-free condition.
- ▶ Disconnect electrical connection and hose.
- ▶ Drain any liquid in the eloLance.
- ▶ If necessary, close the container opening with the cover.
- ✓ **eloLance dismantled.**

Disposing of the eloLance

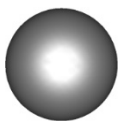
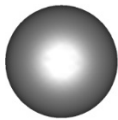



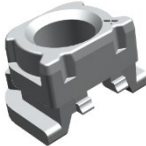

- ▶ Disassemble the eloLance as described above.
- ▶ Clean and empty the eloLance.
- ▶ Capture any dripping media according to health and safety regulations.
- ▶ Dispose of packaging and used parts in accordance with the relevant national regulations.
- ▶ Do not dispose of the eloLance with domestic waste; e.g. dispose of at the collection centre of a waste management utility.
- ✓ **eloLance disposed of.**

8. Accessories and spare parts list

Accessories and spare parts are available in the elobau online shop eloStore, or on inquiry.

Figure	Spare part no.	Designation 1	Designation 2
	352SL2100	Clamping cone D30 / D37	Spare part/accessories SL2
	352SL2201	Hose connector for hose ID4	Spare part/accessories SL2
	352SL2202	Hose connector for hose ID6	Spare part/accessories SL2
	352SL2203	Hose connector for hose ID8	Spare part/accessories SL2
	352SL2300	Glass ball	Spare part/accessories SL2

Accessories and spare parts list

Figure	Spare part no.	Designation 1	Designation 2
	352SL2301	PTFE ball	Spare part/accessories SL2
	352SL2302	Ceramic ball	Spare part/accessories SL2
	352SL2400	Float switching point	Spare part/accessories SL2D
	352SL2401	Float continuous	Spare part/accessories SL2R
	352SL2500	Filter sieve	Spare part/accessories SL2
	352SL2501	Ball valve	Spare part/accessories SL2
	352SL2503	Snap ring	Spare part/accessories SL2



elobau GmbH & Co. KG
Zeppelinstraße 44
D-88299 Leutkirch
+49-7561-970-0
www.elobau.de