Level Measurement

Visual Level Indicators VLI
Tank Level Instruments TLI Industry
Tank Level Instruments TLI Marine

Installation and Operating Manual

Visual Level Indicator (VLI)

Date: 03.05.2022
Version: E 10.2

Member of the ARCA FLOW Group

Notes

Order:

Date:

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Content

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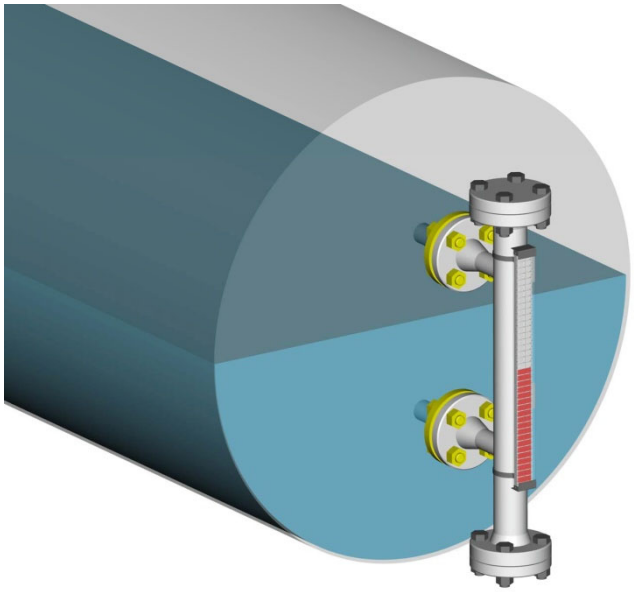
1. Type overview



23614E	EconomyLine 6
34000E	EconomyLine 6
23614	StandardLine 6
34300	StandardLine 28
32755	StandardLine 50
34000	SmartLine 50
34110	SmartLine 50
36800	HighPressure Power 80
26411	HighPressure Power 100
25683	HighPressure Power 160
32806	HighPressure Power 200
26421	HighPressure Power 250
26431	HighPressure Power 315
38400	HighPressure Power 400
38500	HighPressure Power 500
39020	PetroLine 20
39021	PetroLine 20-low density
39050	PetroLine 50
39051	PetroLine 50-low density
39068	PetroLine 68
39100	PetroLine 100
39150	PetroLine 150
39250	PetroLine 250
39420	PetroLine 420
39630	PetroLine 630
40350	LowDensityLine 50
	Plastic VLI PVDF, PP, PVC

23013	Top of Tank Line 6
25270/6	Top of Tank Line 6
25270/28	Top of Tank Line 28
25270/50	Top of Tank Line 50
	Plastic ToT PVDF, PP, PVC

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2. Symbols and marks used

	Warning Indicates possible damage to the visual level indicator or injury to the operator or user if the instructions are not followed.
	Caution Indicates possible damage to the visual level indicator if the instructions are not followed.
	Safety information For equipment intended for use in potentially explosive atmospheres in accordance with the European directive 2014/34/EU (ATEX) or IECEx. This information is applicable in addition to all other information.

3. Safety information and warnings

The manufacturer accepts no liability for damage caused as a result of failure to comply with the safety information and warnings.

- Risk of burning! Working on hot visual level indicators may result in physical injuries and burns. The surfaces of the standpipes and the process connections may become hot. Allow the tank to cool to the ambient temperature before working on the visual level indicator. Wear suitable protective equipment (gloves, face guard, possibly breathing apparatus). Keep a sufficient distance away while the machine is in operation.
- Visual level indicators run at excessive pressure carry pressure-related risks. Depressurise the tank before working on the visual level indicator and observe the information in the European Pressure Equipment Directive 2014/68/EU.
- When opening the visual level indicator, bear in mind that the fluids and gases it contains could be hazardous to health. It is imperative that you comply with the safety data sheets for the process liquids and gases used.
- The visual level indicator may stop working due to the float gauge being blocked, and this may go unnoticed. If you are unsure about the fluid level shown, the visual level indicator should be tested using a different method (see “Troubleshooting”)
- If you suspect that there is a malfunction or determine that there is one, this must be rectified.

- Only use the visual level indicator if you have read and understood this manual in full.
- This manual must also be accessible for later users.
- Keep magnetic and magnetisable parts (magnets, structural steel, iron wire or iron clips, etc.) away from the visual level indicator. The same applies for strong electromagnetic fields (transformers, welding equipment, etc.). Both can interfere with the magnetic force of the magnets inside the visual level indicator and lead to the gauge and any attached accessories (switch, transducer) malfunctioning and dropping out.
- Replace damaged or faulty components with original replacement parts.
- Solvents may dull or crack any plastic parts used. Clean the indication rail with soapy water or a plastic cleaner.
- The visual level indicator must not be installed under mechanical tension.
- The visual level indicator must not be used to mechanically reinforce the tank or the system.

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- Falling parts (screws, floats, etc.) may create impact sparks and lead to an explosion in potentially explosive atmospheres. Make sure that there isn't a potentially explosive atmosphere and that no parts are falling when working on the visual level indicator.
- When working on the visual level indicator, only use equipment and tools permitted in accordance with the European Directive for potentially explosive atmospheres.
- Polycarbonate indication rails may become statically charged – e.g. during cleaning. Sparks created when discharging in a potentially explosive atmosphere may cause an explosion. Only clean these parts with antistatic cleaning agents and tools.

4. Intended use

- The visual level indicator may only be used for fluids.
- The visual level indicator may only be used for the purposes recorded on the type plate. The information noted down on the type plate and data sheet must conform with ideal plant operating parameters.
- Uses not intended by the manufacturer, modifications and alterations to the visual level indicator are at your own risk and may be dangerous (guarantee exclusion).
- The visual level indicator may only be installed, commissioned and maintained by a trained professional.
- The manufacturer accepts no liability for damage caused by incorrect use or operation.
- The visual level indicator may only be used for the purposes recorded on the type plate and the Ex label.
- The visual level indicator may only be installed, commissioned and maintained by a trained professional with expertise in explosion prevention.
- The visual level indicator may only be repaired and modified by the manufacturer (or, if appropriate, in consultation with the notified body).

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5. The visual level indicator at a glance

Visual level indicators are used to continuously record the fluid level of the contents of a tank. They are connected as a bypass on the side of the tank, or as a top-of-tank gauge on the tank.

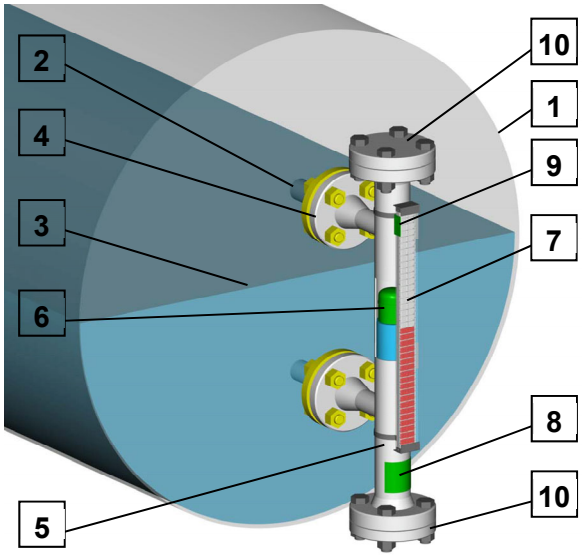

Figure 4A

Visual level indicators may be built in a way that differs from the way depicted in this manual, and individual parts may not be present.

1 Tank (container), supplied by customer
2 Process connections*, supplied by customer
3 Surface of the liquid

Visual level indicator
4 Process connections*, top and bottom
5 Float chamber (also called standpipe)
6 Float
7 Indication rail (see below for details)
8 Type plate with customer-specific parameters
9 “Top” sticker
10 Service connections*, top and bottom

* Process and service connections may be:
Flanges
Couplers
Weld sockets
Internal and external threads

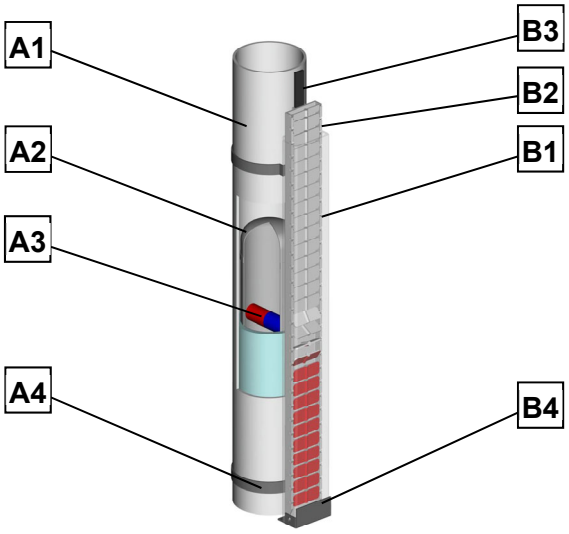

Figure 4B

A1 Float chamber
A2 Flat with integrated bar magnet
A3 Horizontal bar magnet
A4 Crossed, two-part hose clip* (also called bride)

* also possible in single-piece design with a bracket for reinforced mounting

B1 Outer profile**
B2 Inner profile*** with two-tone gauge flaps inserted
B3 Rotating magnetic band
B4 End caps with seal, screwed

** Aluminium outer profile used with plastic or glass strips or polycarbonate profile, sealed
*** Aluminium or polycarbonate inner profile, consistent with outer profile

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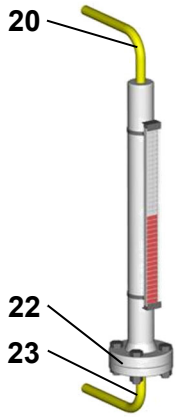
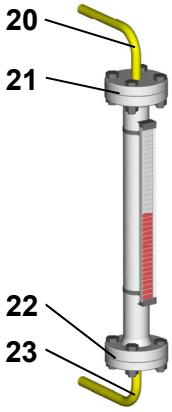
5.1 The four different types of bypass

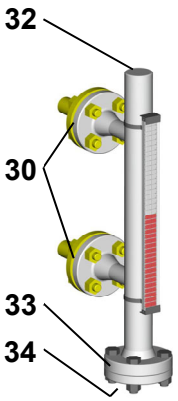
Type A



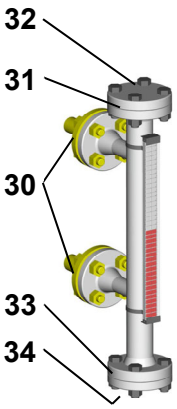
Type B



Type K



Type O



20 Top process connection
21 Top service flange/plug

22 Bottom service flange/plug
23 Bottom process connection

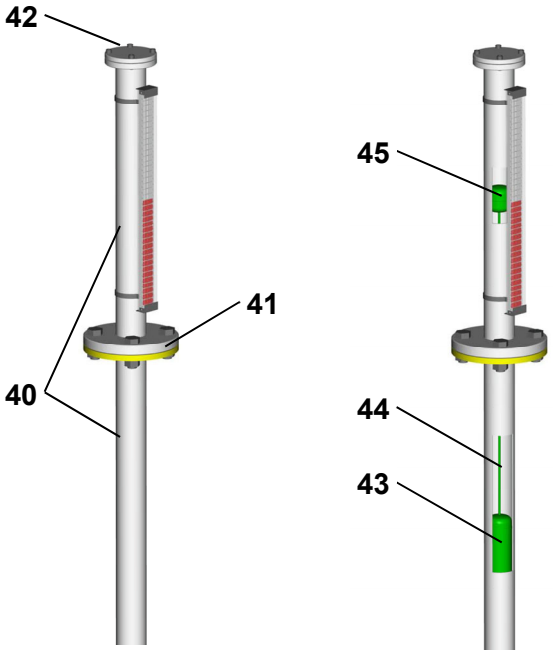
(Drain and vent omitted)

30 Lateral process connections, top and bottom

31 Top service flange/plug
32 Possible ventilation hole with plug

33 Bottom service flange/plug
34 Possible drain hole with plug

5.2 Top-of-tank design



40 Float chamber

41 Process connection
42 Service flange, possibly with ventilation hole and plug

43 Float
44 Rod
45 Magnet holder, possibly rotatable, with integrated, horizontal bar magnet

Figure 4.2

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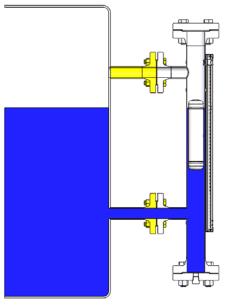
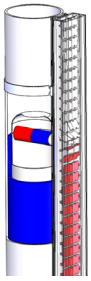
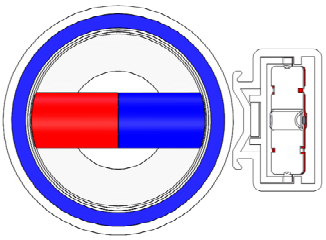
5.3 Options Indication rail

See data sheets for more options.

Measuring scale	Reinforced indication rail mounting	Indication rail with protective hose	Coloured gauge flaps
			

6. Function description

The fluid level in the float chamber corresponds to the fluid level in the tank (communicating vessels).	
The bar magnet has been integrated into the float in a way that means the centre of the bar magnet is level with the surface of the liquid. Each float has been designed for a specific liquid density.	
The magnetic band in the indication rail aligns the bar magnet with the indication rail – like a compass needle.	

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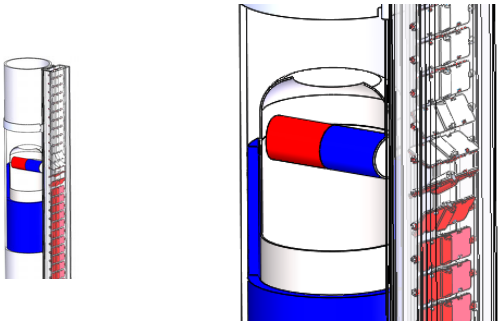
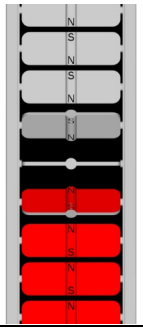
The magnetic field of the bar magnet penetrates the non-magnetic standpipe and rotates the gauge flaps by 180° when it goes past. Information on options: Magnetic switches and transducers can also be controlled using the bar magnet in the float.	
Magnets built into the gauge flaps keep the gauge flaps in position (magnetic coupling).	

7. Scope of delivery for visual level indicator

- Visual level indicator, as ordered
- Visual level indicator manual
- Works test certificate EN 10204 – 2.2 (function and pressure testing)
- Optional: acceptance test certificate EN 10204 – 3.1 (material certificate)
- Optional: other certificates like NACE

8. Preparation for assembly

8.1 Unpacking

1. Lay the visual level indicator and the packaging flat on the floor.
2. Remove the packing tape.
3. Remove the staples in the overlapping cardboard at both ends of the packaging with a big screwdriver or an appropriate tool.
4. Open the packaging and remove the visual level indicator together with the packing trays at both ends.
5. Carefully remove the packing trays. Make sure that the visual level indicator is on a clean, smooth surface so that the process connections or supplied parts are not damaged.
6. Make sure that no other parts are in the packaging.
7. Visually inspect the visual level indicator and all the supplied parts for possible damage caused during transport. Don’t use any damaged or dubious parts.

8.2 Disposing of the packaging

Protect the environment and take the packaging material to be disposed of / recycled properly.

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8.3 Remove float protection

- If the float is not suitable for the intended use (density, max. operating pressure, max. operating temperature, connection dimensions, material, etc.), the visual level indicator may display an incorrect level, and it may be damaged and pose a risk. Make sure that the float is suitable for the intended application.

- Incorrect or incorrectly inserted seals result in leaks. It is imperative that you ensure the correct seals (material, design) are used for your specific application, and that the seals are positioned correctly.

- Damaged floats adversely affect the functioning of the visual level indicator. Handle the float carefully and don't drop it!

- Foreign substances in the float chamber adversely affect the functioning of the visual level indicator. Remove them completely!

- An incorrectly installed float will lead to the incorrect fill level being displayed! Slide the float into the float chamber as shown.

- Falling parts (screws, floats, etc.) may create impact sparks and may lead to an explosion in potentially explosive atmospheres. Make sure that there isn't a potentially explosive atmosphere and that no parts are falling when working on the visual level indicator. Only use approved tools.

To avoid damage in transit, the float for some designs is secured to the outside of the float chamber separately in a cardboard tube. For all other devices, it is secured with a safety device inside the float chamber to the lower process connection using a cord. This needs to be removed / detached before assembly:

- If the float is secured outside the float chamber, follow point A.
- If the float is in the float chamber, follow point B.
- If it is a top-of-tank gauge, follow point C.

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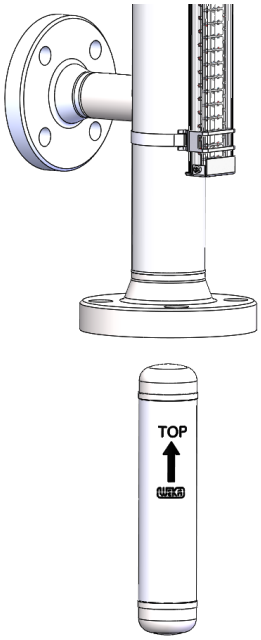
A) Float attached



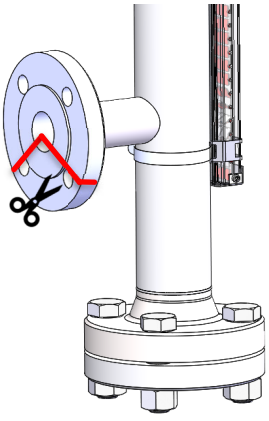
1. Detach the cardboard tube from the float chamber.
2. Open the cardboard tube and take out the float.
3. Remove the cardboard rings.
4. Remove the bottom service flanges/plugs.
5. Double check that the float is suitable for the chosen application using the highlighted data.
6. Insert the float into the float chamber so that the arrow with the label “TOP” is pointing upwards.
7. Bear in mind that the float can now move freely in the float chamber and may be damaged. You should therefore now move the level gauge with all due care.
8. Make sure that there are no foreign substances in the float chamber.
9. Make sure that seal has been inserted correctly.
10. Install the bottom service flange/plug. If you’re dealing with a flange, tighten the screws diagonally. Bear any tightening torque information in mind.

VLI line	VLI type	Torque [Nm]
SmartLine	34000	20
	34110	
StandarLline	23614	20
	34300	60
	32755	40
EconomyLine	34000E	20
	23614E	20
HighPressureLine	36800	45
	26411	25
	25683	50
	32806	50

Further torque values on datasheet, drawing or on request.

11. Remove the protective covers from the process connections.

B) Float secured in the float chamber



1. Sever the float safety device from the lower process connection.
2. Pull the float safety device completely out of the process connection from one end. Make sure that there are no foreign substances in the float chamber.
3. Bear in mind that the float can now move freely in the float chamber and may be damaged. You should therefore now move the level gauge with all due care.
4. Remove the protective covers from the process connections.

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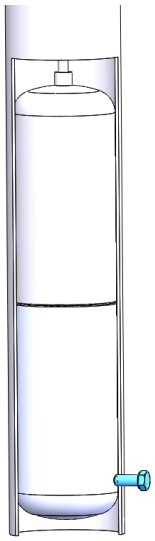
C) Float for top-of-tank designs



1. The float system for the top-of-tank design consists of a floatation body (called a float here), the magnet holder and the rod that connects the two parts.
2. Type 23013:
   The float moves along a guiding pipe and is fixed for transportation by a cable tie against movement.
   Type 25270:
   The float is in the float chamber and is stopped from moving around thanks to a screw at the bottom end of the chamber.
3. Type 23013:
   Remove cable tie and dispose properly.
   Type 25270:
   Turn the screw until the float can move without too much resistance and move the float further into the float chamber.
4. Bear in mind that the float can now move freely and may be damaged. You should therefore now move the level gauge with all due care.
5. Type 25270:
   Put the screw all the way back in and tighten it so that it can’t go missing. Now the float cannot fall out.

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9. Installation

Preparations for installing (point 8) the visual level indicator must be completed before installation.

- If the data marked on the type plate (density, max. operating pressure, max. operating temperature, connection dimensions, material, etc.), does not match the application, the visual level indicator may display an incorrect level, and it may be damaged and pose a risk to people and the environment. Make sure that the data marked on the type plate matches the application.

- Unsuitable screws, nuts and seals may result in leaks and cause damage and may endanger people and the environment. Only use components suited to the application.

- For visual level indicators with weld sockets as process connections, only suitable (approved) welding processes may be used. The same applies to the selection of filler materials.

- Working on hot or pressurised visual level indicators may result in physical injuries, burns, chemical burns or poisoning. Depressurise the tank and allow it to cool to the ambient temperature before working on the visual level indicator. Wear suitable protective equipment (gloves, face guard, possibly breathing apparatus).

- The visual level indicator may only be used for the purposes recorded on the type plate and the Ex label.

- Falling parts (screws, floats, etc.) may create impact sparks and lead to an explosion in potentially explosive atmospheres. Make sure that there isn't a potentially explosive atmosphere and that no parts are falling when working on the visual level indicator.

- In the absence of equipotential bonding, static charges may build up, which may result in sparking and lead to explosions. To equalise the potential, permanently connect the metallic housing of the visual level indicator (float chamber) to the equipotential bonding conductor of the system (tank).
  Possible equipotential bonding connections:
  - Weld the weld sockets (process connection) to the tank
  - Connect the flanges (process connection) to the tank via at least two bolts.
  - If none of these are possible, set up an equipotential bonding conductor of at least 4mm² via a clamp connection.
  - The connection points must be free of paint.

  Also, the accessories, like magnet switches, transmitters, etc. must be connected to the potential equalisation system.

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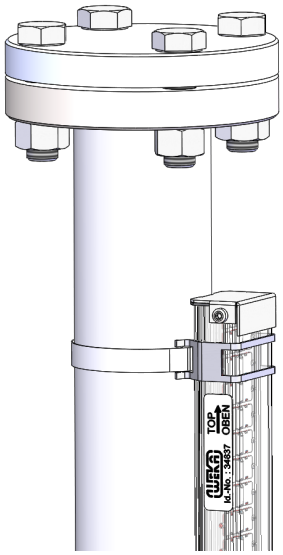
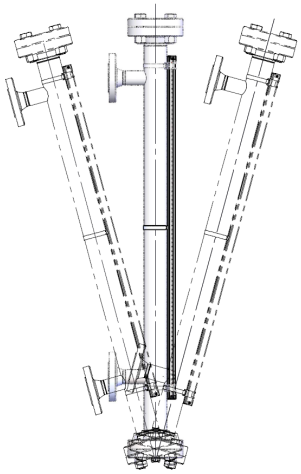
9.1 Mounting



1. Lay out the tools, lifting aids, screws, nuts and seals that you need to install the visual level indicator.
2. Position the visual level indicator on the tank. When doing so, make sure that the TOP sticker on the indication rail is pointing upwards.
3. If needed, add seals to the connection threads or between the flange connections.

- Flange connections
  Tighten the flange connection screws diagonally. Check that the screw connections are a tight fit.
- Weld sockets
  Remember that heat will be built up when welding weld sockets. Components at risk should be covered, cooled, or temporarily removed.
- Screw-in threads
  The visual level indicator and indication rail must not be used to provide counter torque when installing the screw-in threads. Use a suitable tool for counteraction without putting stress on or damaging mounted parts.

9.2 Inspecting



For all types of installation, make sure that the process connections for the visual level indicator are aligned with the tank's process connections.

The visual level indicator must be installed in a vertical position. You can check this with a spirit level on the float chamber. Deviations of up to 5° from the vertical position are acceptable. Larger deviations may result in increased friction on the float in the float chamber and may lead to blockages. It is imperative that this is agreed with the supplier.

Twisting or bending of the float chamber, caused by incorrect socket distances for example, may block the float and lead to the visual level indicator breaking down!

10. Commissioning

Installation (point 8 to point 9) must be fully completed before commissioning.

- If the data marked on the type plate (density, max. operating pressure, max. operating temperature, connection dimensions, material, etc.), does not match the application, the visual level indicator may display an incorrect level, and it may be damaged and pose a risk to people and the environment. Make sure that the data marked on the type plate matches the application.

- Check the visual level indicator for visible external damage before use. Do not put a damaged visual level indicator into operation.
- The visual level indicator may only be used for the purposes recorded on the type plate and the Ex label.

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The visual level indicator is filled with liquid from the tank. When filling the tank for the first time, bear in mind that there will not yet be any liquid in the float outlet, and that the float will only float when this dead space has been filled via the lower socket.
Once the float starts floating, some time will still be needed for it to align with the magnetic band of the indication rail. From then on, the fill level should be shown when the gauge flaps are turned down.
If any of the gauge flaps are shifted into an incorrect position during transit, it is possible to move them back to their intended locations using a weak hand-held magnet. This method can also be used to test the mobility of the gauge flaps by hand. However, they should always then be put back in their original positions.
It is advisable to completely drain the tank under supervision once, and to visually check the fill level so that you can guarantee the level gauge is functioning properly.
Just to be on the safe side, check the entire device after it has been filled, including checking the seals for leaks.
For steam applications, it is imperative that you ensure no pressure surges occur, as this may catapult the float up into the float chamber and destroy it.

11. Maintenance

- Only use the visual level indicator if it is working properly.
- Do not use an unsealed visual level indicator.

- Working on hot or pressurised visual level indicators may result in physical injuries, burns, chemical burns or poisoning. Depressurise the tank and allow it to cool to the ambient temperature before working on the visual level indicator. Wear suitable protective equipment (gloves, face guard, possibly breathing apparatus).

- If you suspect that there is a malfunction or determine that there is one, this must be rectified. Damaged or faulty components must be replaced by original replacement parts.

- The visual level indicator may only be repaired and modified by the manufacturer (or, if appropriate, in consultation with the notified body).

The visual level indicator is generally maintenance-free.
The level gauge should only be cleaned on the outside – and on the inside if necessary – in the event of a suspected malfunction, or in any of the circumstances listed below.

Time	Scope
While in use – In the event of a suspected malfunction – Periodically, depending on usage and degree of contamination	Check visual level indicator for leaks. If required, clean inside and outside. Check float for excessive wear marks.
Before each use	Check for damage.
For highly-viscous and/or heavily contaminated process liquids	Periodically clean the inside, depending on degree of contamination.
After a long period of inactivity	Check visual level indicator for leaks. If required, clean inside and outside.
After cleaning (see chapter 12)	Check visual level indicator for leaks.

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12. Cleaning visual level indicator

12.1 Cleaning the outside

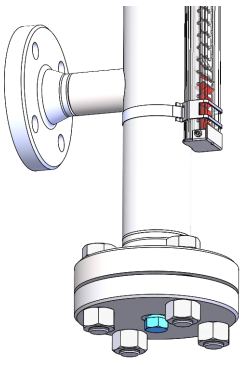
- Polycarbonate indication rails may become statically charged – e.g. during cleaning. Sparks created when discharging in a potentially explosive atmosphere may cause an explosion. Only clean these parts with antistatic cleaning agents and tools.

Caution
Solvents and scouring agents may cause the indication rail window to become dull or cracked. Clean the window with soapy water or a plastic cleaner.

12.2 Cleaning the float chamber and the float

- Risk of burning! Working on hot visual level indicators may result in physical injuries and burns. The surfaces of the standpipes and the process connections may become hot. Allow the tank to cool to the ambient temperature before working on the visual level indicator. Wear suitable protective equipment (gloves, face guard, possibly breathing apparatus). Keep a sufficient distance away while the machine is in operation.
- Visual level indicators run at excessive pressure carry pressure-related risks. Depressurise the tank before working on the visual level indicator and observe the information of the local valid pressure regulations, i.e. Pressure Equipment Directive 2014/68/EU.
- When opening the visual level indicator, bear in mind that the fluids and gases it contains could be hazardous to health. It is imperative that you comply with the safety data sheets for the process liquids and gases used.
- Falling parts (screws, floats, etc.) may create impact sparks and lead to an explosion in potentially explosive atmospheres. Make sure that there isn't a potentially explosive atmosphere and that no parts are falling when working on the visual level indicator.

When using highly contaminated fluids or pipe systems, the float and the float chamber need to be cleaned frequently.
In fluids with magnetic parts, they cluster on the float's magnet. Remove them frequently.



1. Empty the tank.
   - The float may fall out and get damaged when you remove the connection flange.
     Remove the float chamber via the lower service connection, see Figure (Service plug/flange).
     Remove the lower service plug/flange and the float.
2. Clean the float chamber and the float with a suitable cleaning agent.

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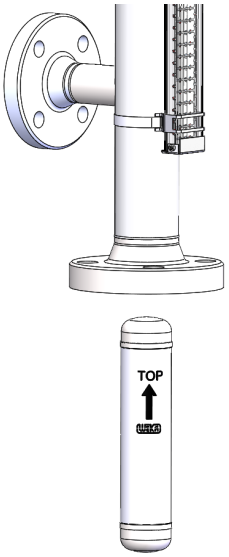
3. Check the float.



- Floats with heavy signs of wear need to be replaced occasionally. When ordering replacements, make a note of the serial/order number and the item number to make clear assignment possible.
- If the density noted on the float doesn't match with the density of the fluid, the visual level indicator will show an incorrect fill level. Consult your authorised WEKA dealer before using a float from a different visual level indicator.
  An incorrectly installed float will lead to the incorrect fill level being displayed!

4. Slide the float into the float chamber as shown.

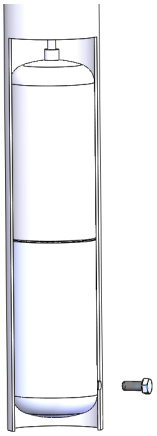
- Unsuitable screws, nuts and seals may result in leaks and cause damage and may endanger people and the environment. Only use components suited to the application.

5. Reseal the service connection, as described in point 9.1.
   Recommission the visual level indicator, as described in point 10.

12.3 Cleaning the float chamber and float for a top-of-tank assembly

- Risk of burning! Working on hot visual level indicators may result in physical injuries and burns. The surfaces of the standpipes and the process connections may become hot. Allow the tank to cool to the ambient temperature before working on the visual level indicator. Wear suitable protective equipment (gloves, face guard, possibly breathing apparatus). Keep a sufficient distance away while the machine is in operation.
- Visual level indicators run at excessive pressure carry pressure-related risks. Depressurise the tank before working on the visual level indicator and observe the information of the local valid pressure regulations, i.e. Pressure Equipment Directive 2014/68/EU.
- When opening the visual level indicator, bear in mind that the fluids and gases it contains could be hazardous to health. It is imperative that you comply with the safety data sheets for the process liquids and gases used.
- Falling parts (screws, floats, etc.) may create impact sparks and lead to an explosion in potentially explosive atmospheres. Make sure that there isn't a potentially explosive atmosphere and that no parts are falling when working on the visual level indicator.

1. Remove the visual level indicator.



2. Loosen the lower float stopper (usually a screw in the guide pipe which stops the float from falling out) until you can remove the float.

3. Clean the float chamber and the float system with a suitable cleaning agent. Check the float system (floatation panel, connecting pipe and magnet holder) for damage and replace them if needed.
   Floats with heavy signs of wear need to be replaced occasionally. When ordering replacements, make a note of the serial/order number and the item number to make clear assignment possible.

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4. Put the float system back in the float chamber and fit the float stopper, see chapter 8.3.

5. Reinstall the visual level indicator on the tank.

- Unsuitable screws, nuts and seals may result in leaks and cause damage and may endanger people and the environment. Only use components suited to the application.

6. Recommission the visual level indicator, as described in point 10.

13. Operating, transport and storage conditions

13.1 Operating conditions

According to the type plate and order confirmation / drawing
Environment (standard):

- Temperature: -20°C to +60°C
- Relative humidity: 10% to 95%

- The operating and ambient conditions may be restricted for products for use in potentially explosive atmospheres. Please comply with the information on the type plate and explosion-proof plate.

13.2 Transport and storage conditions

- Protect the visual level indicator from severe jolts.
- Do not place heavy items on the visual level indicator or its packaging.
- To avoid damage in transit, secure the flat with a safety device.
- Store the visual level indicator in a dry environment.
- Avoid contact with water and moisture
- Temperature: -40°C to +80°C
- Relative humidity: 10% to 95%

14. Technical data

General information can be gathered from the data sheet for the model in question.
Order-specific data as per type plate and order confirmation / drawing.

15. Disassembly / disposal

15.1 Disassembly

- Risk of burning! Working on hot visual level indicators may result in physical injuries and burns. The surfaces of the standpipes and the process connections may become hot. Allow the tank to cool to the ambient temperature before working on the visual level indicator. Wear suitable protective equipment (gloves, face guard, possibly breathing apparatus). Keep a sufficient distance away while the machine is in operation.
- Visual level indicators run at excessive pressure carry pressure-related risks. Depressurise the tank before working on the visual level indicator and observe the information of the local valid pressure regulations, i.e. Pressure Equipment Directive 2014/68/EU.

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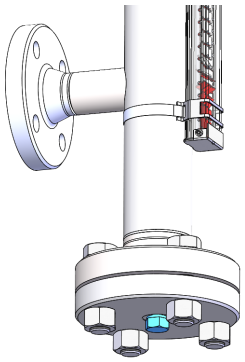
- When opening the visual level indicator, bear in mind that the fluids and gases it contains could be hazardous to health. It is imperative that you comply with the safety data sheets for the process liquids and gases used.
- Falling parts (screws, floats, etc.) may create impact sparks and lead to an explosion in potentially explosive atmospheres. Make sure that there isn't a potentially explosive atmosphere and that no parts are falling when working on the visual level indicator.

1. Empty the tank.
2. Remove the float chamber via the lower service connection (service plug/flange).
3. Remove the lower service plug/flange and the float.
   - Caution: The float may fall out and get damaged when you remove the connection flange.
4. To avoid damage in transit, the float should be furnished with a transport safety device (original, if possible). If in doubt, pack the float in separate packaging.



15.2 Disposing of the visual level indicator

Protect the environment and take the visual level indicator to be disposed of properly.

16. Troubleshooting

Problem	Possible causes	Possible solutions
No visual level shown even though there is fluid in the tank	Float blocked by dirt in the float chamber. Float is damaged, has filled with fluid and sunk. Float is caught on iron parts installed outside the float chamber.	Clean the float and float chamber (see "Maintenance" section). Replace the float. Compare system test pressure with information on the type plate. Search for iron parts (clips, screws, etc.) along the visual level indicator with a magnet and remove or replace them.
Gauge level different to surface of the liquid (variation) – Deviation of a few centimetres or millimetres	Unavoidable deviation with float. Incorrect float being used. Immersion depth of the magnet in the float incorrectly calibrated.	See data sheet. Check whether the correct float has been used. Shift the magnet in the flat by tapping the float on a soft pad (rubber mat).

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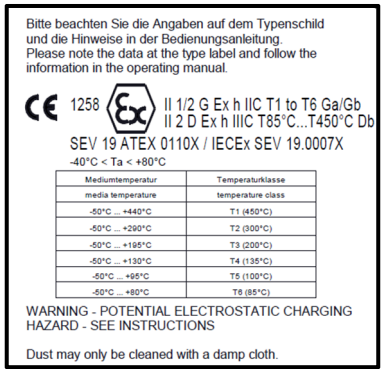
Gauge level different to surface of the liquid (variation) – Deviation of several centimetres	Incorrect float being used. Float incorrectly in the standpipe. Immersion depth of the magnet in the float incorrectly calibrated.	Check whether the correct float has been used. Check the orientation of the float and rotate it if necessary. Shift the magnet in the flat by tapping the float on a soft pad (rubber mat).
Colour combination displayed incorrectly, e.g. red at the top	Indication rail installed the wrong way around.	Check the TOP sticker and rotate the indication rail if necessary.

17. Label

17.1 Type plate

The visual level indicator may only be used for the purposes recorded on the type plate. The information noted down on the type plate and data sheet must conform with ideal plant operating parameters.
Uses not intended by the manufacturer, modifications and alterations to the visual level indicator are at your own risk and may be dangerous (guarantee exclusion).

17.2 Explosion-proof plate


Bitte beachten Sie die Angaben auf dem Typenschild
und die Hinweise in der Bedienungsanleitung.
Please note the data at the type label and follow the
information in the operating manual.

CE 1258 Ex II 1/2 G Ex h IIC T1 to T6 Ga/Gb
II 2 D Ex h IIIC T85°C...T450°C Db

SEV 19 ATEX 0110X / IECEx SEV 19.0007X

-40°C < Ta < +80°C

Mediumtemperatur media temperature	Temperaturklasse temperature class
-50°C ... +440°C	T1 (450°C)
-50°C ... +290°C	T2 (300°C)
-50°C ... +195°C	T3 (200°C)
-50°C ... +130°C	T4 (135°C)
-50°C ... +95°C	T5 (100°C)
-50°C ... +80°C	T6 (85°C)

WARNING - POTENTIAL ELECTROSTATIC CHARGING
HAZARD - SEE INSTRUCTIONS

Dust may only be cleaned with a damp cloth.

The visual level indicator may only be used for the purposes recorded on the type plate and the Ex label.

18. Customer service

You can find a list of global WEKA representatives in your order confirmation or on the WEKA website, www.weka-ag.ch

or you can contact us directly at

WEKA AG
Schürlistrasse 8
CH-8344 Bäretswil
Switzerland
Telephone +41 (0)43 833 43 43
Email level@weka-ag.ch

19. EU Declaration of Conformity for non-explosion-proof devices

EU - KONFORMITÄTSERKLÄRUNG
EU - DECLARATION OF CONFORMITY

Wir / We **WEKA AG**

(Name des Herstellers) (Manufacturers name)

erklären in alleiniger Verantwortung, dass das Produkt
declare under our sole responsibility that the product

Magnet-Niveauanzeiger / Visual Level Indicator (VLI)

Typen / Types:	**34000E, 23614E**
Ausführung / Execution:	**-A; -K**
Typen / Types:	**25670, 25672, 25674, 25475, 25478, 25479, 25470, 25480, 25490, 25271, 25272, 25274**
Ausführung / Execution:	**-A; -B; -K; -O**

(Diese Produkte dürfen NICHT für Ex- Anwendungen eingesetzt werden / These products should NOT be used for Ex applications)

(Bezeichnung Typ oder Modell, Los-, Chargen- oder Seriennummer, möglichst Herkunft und Stückzahl)
(Name, type or model, lot, batch or serial number, possibly sources and numbers of items)

auf das sich diese Erklärung bezieht, mit den folgenden Normen oder normativen Dokumenten übereinstimmt
to which this declaration relates is in conformity with the following standards or other normative documents

EN 13445-3:2018

(Titel und/oder Nummer sowie Ausgabedatum der Normen oder der anderen normativen Dokumente)
(Title and/or number and date of issue of the standards or other normative documents)

Gemäss den Bestimmungen der Richtlinie(n),
Following the provisions of Directive(s),
(falls zutreffend) (if applicable)

2014/68/EU (PED)			
Qualitätssicherung / quality assurance	Art 4.3	WEKA AG (Art. 4.3)	
	Kat. I	WEKA AG (CE) Modul / module A	
	Kat. ≥ II	DNV (CE 0575) Modul / module H	PEDH000000R
		DNV (CE 0575) Modul / module H1	PEDH10000017
		DNV AS, Veritasveien 1, 1363 Høvik, Norway	

(Richtlinie, Geltungsbereich / Kategorie, ggf. Name, Nummer und Anschrift der notifizierten Stelle)
(Directive, scope / category, if necessary name, number and address of notified body)

(Ort und Datum der Ausstellung)
(Place and date of issue)

Bäretswil, 03.05.2022

(Name und Unterschrift des Befugten)
(Name and signature of authorized person)

Marc Hofmann
(Quality Manager)

Stefan Otto
(Produkt Manager)

WEKA AG · Switzerland · Schürlistrasse 8 · CH-8344 Bäretswil · Phone +41 43 833 43 43 · info@weka-ag.ch · www.weka-ag.ch

20. EU Declaration of Conformity for explosion-proof devices

EU - KONFORMITÄTSERKLÄRUNG
EU - DECLARATION OF CONFORMITY

Wir / We **WEKA AG**

(Name des Herstellers) (Manufacturers name)

erklären in alleiniger Verantwortung, dass das Produkt
declare under our sole responsibility that the product

Magnet-Niveauanzeiger / Visual Level Indicator (VLI)

Typen / Types:	**34000, 34110, 34000-CuNi, 34110-CuNi, 23614, 34300, 32755, 36800, 26411, 25683, 32806, 26421, 26431, 38400, 38500, 39020, 39021, 39050, 39051, 39069, 39100, 39150, 39250, 39420, 39630, 40350, 23013, 25270**
Ausführung / Execution:	**-A; -B; -K; -O**

(Bezeichnung Typ oder Modell, Los-, Chargen- oder Seriennummer, möglichst Herkunft und Stückzahl)
(Name, type or model, lot, batch or serial number, possibly sources and numbers of items)

auf das sich diese Erklärung bezieht, mit den folgenden Normen oder normativen Dokumenten übereinstimmt
to which this declaration relates is in conformity with the following standards or other normative documents

EN 13445-3:2018
EN ISO 80079-36:16
EN ISO 80079-37:16

(Titel und/oder Nummer sowie Ausgabedatum der Normen oder der anderen normativen Dokumente)
(Title and/or number and date of issue of the standards or other normative documents)

Gemäss den Bestimmungen der Richtlinie(n),
Following the provisions of Directive(s),
(falls zutreffend) (if applicable)

2014/68/EU (PED)			
Qualitätssicherung / quality assurance	Art 4.3	WEKA AG (Art. 4.3)	
	Kat. I	WEKA AG (CE) Modul / module A	
	Kat. ≥ II	DNV (CE 0575) Modul / module H	PEDH000000R
		DNV (CE 0575) Modul / module H1	PEDH10000017
		DNV AS, Veritasveien 1, 1363 Høvik, Norway	
2014/34/EU (ATEX)			
EU- Baumusterprüfbescheinigung / EU type examination certificate			SEV 19 ATEX 0110 X

(Richtlinie, Geltungsbereich / Kategorie, ggf. Name, Nummer und Anschrift der notifizierten Stelle)
(Directive, scope / category, if necessary name, number and address of notified body)

(Ort und Datum der Ausstellung)
(Place and date of issue)

Bäretswil, 03.05.2022

(Name und Unterschrift des Befugten)
(Name and signature of authorized person)

Marc Hofmann
(Quality Manager)

Stefan Otto
(Produkt Manager)

WEKA AG · Switzerland · Schürlistrasse 8 · CH-8344 Bäretswil · Phone +41 43 833 43 43 · info@weka-ag.ch · www.weka-ag.ch

21. ATEX Certificate (Type Examination Certificate)

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(1) **EU-Type Examination Certificate**

(2) Equipment or protective system intended for use in potentially explosive atmospheres - **Directive 2014/34/EU**

(3) Certificate number: **SEV 19 ATEX 0110 X**

(4) Product: Visual Level Indicators Types see page 2

(5) Manufacturer: WEKA AG

(6) Address: Schürlistrasse 8, 8344 Bäretswil, SWITZERLAND

(7) The equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) Eurofins, notified body No. 1258, in accordance with article 17 of Directive 2014/34/EU of the European parliament and of the council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no 18-Ex-0175.X01

(9) Compliance with the essential health and safety requirements has been assured by compliance with:

EN ISO 80079-36:16 **EN ISO 80079-37:16**

Except in respect of those requirements listed at item 18 of the schedule.

(10) If the sign «X» is placed after the certificate number, it indicates that the product is subjected to special conditions for safe use specified in the schedule to this certificate.

(11) This EU type examination certificate relates only to design and construction of the specified product. Further requirements of this directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

II 1/2 G Ex h IIC T6 ...T1 Ga/Gb
II 2 D Ex h IIIC T80...T450 °C Db;

Eurofins Electrosuisse Product Testing AG
Notified Body ATEX

Martin Plüss
Product Certification

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(13) # Appendix

(14) **EU-Type Examination Certificate no. SEV 19 ATEX 0110 X**

(15) **Description of product**

Types:
Smart-Line 50, Standard 6, Standard 28, Standard 50,
High pressure-PowerLine, PetroLine, Top of Tank

VLI (Visual Level Indicators) are used to continuously indicate the level of a liquid inside a vessel.
They are installed beside the vessel as a bypass or on top of a tank.
Based on the principle of communicating vessels the liquid level inside the bypass is same as inside the vessel.

The float inside the bypass (float chamber of VLI) floats on the surface or in between the interface of two liquids with different densities.
The magnet inside the float transfers the 'signal' to the outer side of the bypass and activates the indication rail with the flaps.
The system is hermetically tight and is seen as a vessel acc. Pressure Equipment Directive – PED 2014/68/EU.
The float chambers are made of non-magnetic metals or conductive plastics.

Classification of installation and use:	stationary
Ingress protection:	More than IP66.
Rated ambient temperature range (°C):	-40 °C ... +80 °C
Liquid temperature range (°C):	-40 °C ... +440 °C
Rated ambient temperature range (°C) for Ex Components:	---

(16) **Report number** 18-Ex-0175.X01

(17) **Specific conditions of use**

- WARNING: POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS
  Dust may only be cleaned with a damp cloth.
- Maximum length of the Visual Level Indicators (tube) is 10 meter.
- The Visual Level Indicators must be earthed.
- In case the device is made in titanium, the device must be protected against impacts.

(18) **Essential health and safety requirements**

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
None	

(19) **Drawings and Documents**

See test report "Manufacturer's Documents"

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Type key

Type	Brand name	Executions			
23614	StandardLine 6	A	B	K	O
34300	StandardLine 28	A	B	K	O
32755	StandardLine 50	A	B	K	O
34000	SmartLine 50	A	B	K	O
34110	SmartLine 50	A	B	K	O
36800	High Pressure PowerLine 80	A	B	K	O
26411	High Pressure PowerLine 100	A	B	K	O
25683	High Pressure PowerLine 160	A	B	K	O
32806	High Pressure PowerLine 200	A	B	K	O
26421	High Pressure PowerLine 250	A	B	K	O
26431	High Pressure PowerLine 315	A	B	K	O
38400	High Pressure PowerLine 400	A	B	K	O
38500	High Pressure PowerLine 500	A	B	K	O
40350	LowDensityLine 50				
39020	PetroLine 20	A	B	K	O
39021	PetroLine 20 – low density	A	B	K	O
39050	PetroLine 50	A	B	K	O
39051	PetroLine 50 – low density	A	B	K	O
39068	PetroLine 68	A	B	K	O
39069	PetroLine 68 – low density	A	B	K	O
39100	PetroLine 100	A	B	K	O
39150	PetroLine 150	A	B	K	O
39250	PetroLine 250	A	B	K	O
39420	PetroLine 420	A	B	K	O
39630	PetroLine 630	A	B	K	O
23013	Top of Tank 16	---	---	---	---
25270/06	Top of Tank 6	---	---	---	---
25270/28	Top of Tank 28	---	---	---	---
25270/50	Top of Tank 50	---	---	---	---

Legend:

Execution	Upper and lower process ports:	Upper float chamber end:	Lower float chamber end:
A	top to bottom	threaded cap	threaded flange
B	top to bottom	threaded flange	threaded flange
K	Side to side	Cap	Service flange
O	Side to side	Service flange	Service flange

Maximum Liquid temperature depending of the temperature class

Temperature class	Maximum Liquid temperature °C
T1	440
T2	290
T3	195
T4	130
T5	95
T6	80

Note 1: Only gaskets made of graphite are permitted.

Note 2: High pressure-PowerLine = High pressure –Power in the brochure
PetroLine = Petro in the brochure

22. IECEx Certificate of Conformity (CoC)

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx SEV 19.0007X
Issue No: 0
Certificate history:
Issue No. 0 (2019-03-22)

Status: **Current**

Page 1 of 3

Date of Issue: **2019-03-22**

Applicant: **WEKA AG**
Schürlistrasse 8
8344 Bäretswil
Switzerland

Equipment: **Visual Level Indicators**
Optional accessory:

Type of Protection: **"h"**

Marking:
Ex h IIC T6 ...T1 Ga/Gb
Ex h IIIC T80...T450 °C Db

Approved for issue on behalf of the IECEx Certification Body: Martin Plüss

Position: Manager Product Certification

Signature:
(for printed version)

Date: 2019-03-22

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

Eurofins Electrosuisse Product Testing AG
Luppmenstrasse 3
CH-8320 FEHRALTORF
Switzerland

eurofins | Electrosuisse Product Testing

IECEx Certificate of Conformity

Certificate No:	IECEx SEV 19.0007X	Issue No: 0
Date of Issue:	**2019-03-22**	Page 2 of 3
Manufacturer:	**WEKA AG** Schürlistrasse 8 8344 Bäretswil **Switzerland**	

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

ISO 80079-36 : 2016 Edition:1.0	Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres - Basic methods and requirements
ISO 80079-37 : 2016 Edition:1.0	Explosive atmospheres - Part 37: Non-electrical equipment for explosive atmospheres - Non electrical type of protection constructional safety "c", control of ignition source "b", liquid immersion "k"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

CH/SEV/ExTR19.0007/00

Quality Assessment Report:

CH/SEV/QAR16.0005/01

IECEx Certificate of Conformity

Certificate No: IECEx SEV 19.0007X Issue No: 0

Date of Issue: **2019-03-22** Page 3 of 3

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Visual Level Indicators

Types:
Smart-Line 50, Standard 6, Standard 28, Standard 50
High pressure-PowerLine, PetroLine, Top of Tank

VLI (Visual Level Indicators) are used to continuously indicate the level of a liquid inside a vessel. They are installed beside the vessel as a bypass or on top of a tank.
Based on the principle of communicating vessels the liquid level inside the bypass is same as inside the vessel.
The float inside the bypass (float chamber of VLI) floats on the surface or in between the interface of two liquids with different densities.
The magnet inside the float transfers the 'signal' to the outer side of the bypass and activates the indication rail with the flaps.
The system is hermetically tight and is seen as a vessel acc. Pressure Equipment Directive – PED 2014/68/EU.
The float chambers are made of non-magnetic metals or conductive plastics.

Classification of installation and use: stationary
Ingress protection: More than IP66.
Rated ambient temperature range (°C): -40 °C ... +80 °C
Liquid temperature range (°C): -40 °C ... +440 °C
Rated ambient temperature range (°C) for Ex Components: —

Type key see Annexe

SPECIFIC CONDITIONS OF USE: YES as shown below:

- WARNING: POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS Dust may only be cleaned with a damp cloth.
- Maximum length of the Visual Level Indicators (tube) is 10 meter.
- The Visual Level Indicators must be earthed.
- In case the device is made in titanium, the device must be protected against impacts.

Annex:

IECEx SEV 19.0007X Annexe Issue 0.pdf

WEKA AG · Switzerland · Schürlistrasse 8 · CH-8344 Bäretswil · Phone +41 43 833 43 43 · info@weka-ag.ch · www.weka-ag.ch

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Annexe to: IECEx SEV 19.0007X

Issue No.: 0
page 1 of 2

Applicant Name: WEKA AG

Electrical Apparatus: Visual Level Indicators

Type key:

Type	Brand name	Executions			
23614	StandardLine 6	A	B	K	O
34300	StandardLine 28	A	B	K	O
32755	StandardLine 50	A	B	K	O
34000	SmartLine 50	A	B	K	O
34110	SmartLine 50	A	B	K	O
36800	High Pressure PowerLine 80	A	B	K	O
26411	High Pressure PowerLine 100	A	B	K	O
25683	High Pressure PowerLine 160	A	B	K	O
32806	High Pressure PowerLine 200	A	B	K	O
26421	High Pressure PowerLine 250	A	B	K	O
26431	High Pressure PowerLine 315	A	B	K	O
38400	High Pressure PowerLine 400	A	B	K	O
38500	High Pressure PowerLine 500	A	B	K	O
40350	LowDensityLine 50				
39020	PetroLine 20	A	B	K	O
39021	PetroLine 20 – low density	A	B	K	O
39050	PetroLine 50	A	B	K	O
39051	PetroLine 50 – low density	A	B	K	O
39068	PetroLine 68	A	B	K	O
39069	PetroLine 68 – low density	A	B	K	O
39100	PetroLine 100	A	B	K	O
39150	PetroLine 150	A	B	K	O
39250	PetroLine 250	A	B	K	O
39420	PetroLine 420	A	B	K	O
39630	PetroLine 630	A	B	K	O
23013	Top of Tank 16	---	---	---	---
25270/06	Top of Tank 6	---	---	---	---
25270/28	Top of Tank 28	---	---	---	---
25270/50	Top of Tank 50	---	---	---	---

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Annexe to: **IECEx SEV 19.0007X** **Issue No.: 0**

Legend:

Execution	Upper and lower process ports:	Upper float chamber end:	Lower float chamber end:
A	top to bottom	threaded cap	threaded flange
B	top to bottom	threaded flange	threaded flange
K	Side to side	Cap	Service flange
O	Side to side	Service flange	Service flange

Maximum Liquid temperature depending of the temperature class

Temperature class	Maximum Liquid temperature °C
T1	440
T2	290
T3	195
T4	130
T5	95
T6	80

Note 1: Only gaskets made of graphite are permitted.

Note 2: High pressure-PowerLine = High pressure –Power in the brochure
PetroLine = Petro in the brochure

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