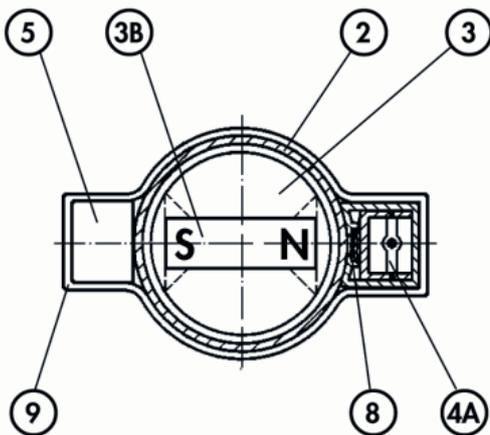
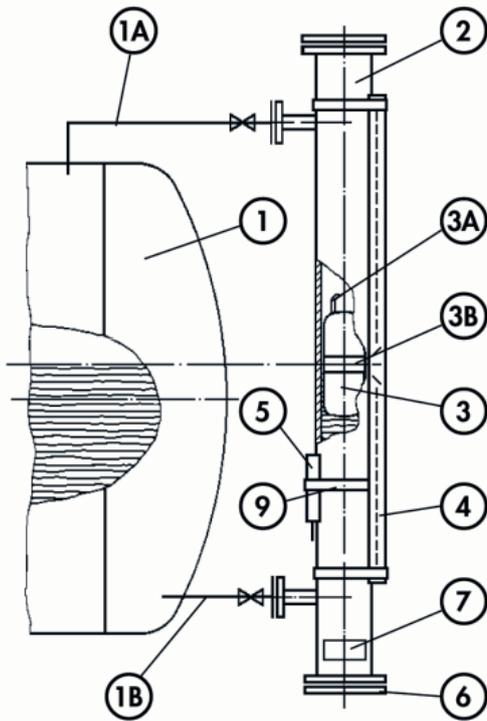


# Operation- and Maintenance Instruction WEKA Visual Level Indicators





- 1. Vessel
- 1A, 1B Connecting pipes
- 2 Standpipe
- 3 Float
- 3A Filling tube
- 3B Bar magnet
- 4 Indication rail
- 4A Indication flaps
- 5 Magnet Switch
- 6 Service Flange
- 7 Nameplate
- 8 Magnetic Tape
- 9 Clip

## 1. Operating Principle

The vessel 1) is connected by two pipes 1A) and 1B) with the standpipe 2) of the Magnetic-Level Indicator.

The liquid in the Magnetic- Level Indicator, following the principle of communicating tubes, always seeks the same level as in the vessel being monitored.

Compelled by changes in fluid level, the float 3) transfers the current level to the Indication Rail on the outside by means of a magnetic coupling.

The bar magnet's 3B) North pole inside the float 3) is, similar to a compass needle always pointing to the integrated magnetic guide tape 8). This self-aligning feature of the patented magnetic guide tape allows the user to position the indication rail according to their particular installation requirements.

The indication flaps 4A) themselves are interlocked by individual magnets in each of the indication flaps which ensures a stable position of the flaps even under the most severe operation conditions, i.e. vibrations or fast changes in the liquid level.

While being attracted by the guide tape, the magnet field of the bar magnet overrides the "magnetic chain" of the magnets in the indicator flaps 4A), thus turning the flaps by 180° and thereby indicating the actual liquid level inside the vessel.

The floats being used in WEKA Magnetic Level Indicators are always "tuned" to the operating conditions, density, operating pressure and temperature of a specific application.

It is for this reason that floats shouldn't be exchanged into other WEKA indicators without prior consulting the local WEKA representative.

On the other side (within  $\pm 45^\circ$  of the indication rail alignment), the South pole of the magnet is used to activate accessories such as Level-switches or Level-transmitters for such things as high / low alarm functions or quasi analogue signal output.

For spare part orders please always note the manufacturing Serial Number, type of indicator as well as the operating conditions as shown on the nameplate of the indicator.

With this information your local WEKA representative will be able to serve you with your specific spare part requirements.

## **2. Installation**

### **A) Preparation**

For transport purposes the float 3) of your WEKA Level Indicator has been secured to the standpipe. Prior to installation place the level indicator in a horizontal position on a stable flat surface and remove the bottom service flange (or other float access fitting). Remove the float from its packaging and insert it into the standpipe paying attention to the *TOP* (or arrow) orientation markings of the float.

Handle the float carefully; do not drop it as it may affect the calibration!

With the float installed, reassemble the bottom service flange. **NOTE: Teflon floats have a product label affixed to them – please remove this before installation.**

### **B) Installation, mechanical**

Make sure that the mating flanges of the vessel onto which the level indicator will be installed are completely flush. Excessive misalignment will cause the standpipe to bend or twist which can prevent the float from moving freely up and down.

The level indicator must be installed with the nameplate 7) at the bottom of the indicator.

If, for any reason the float has to be removed from the standpipe (e.g. for cleaning) do not do so unless:

- you have satisfied yourself that the system is no longer under pressure.
- the level indicator has cooled down to an ambient temperature.
- you have taken precautions against any possibly corrosive or harmful media.

Remember to re-install the float with *TOP* markings correctly aligned.

### **C) Installation - electrical**

The maximum switch rating of WEKA magnetic level switches is indicated on the switch label. This rating must not, under any circumstances be exceeded. Be careful of inrush current spikes etc.

The switches are preferably installed opposite the indication rail (i.e. 12 o'clock with the rail at 6 o'clock). In case of interfering tank connections or a very small distance between two alarm points however, switches may be installed slightly out of this alignment, next to each other. In such a case, both switches must be installed within the max. defined angle ( $\pm 30^\circ$  for SmartLine,  $\pm 45^\circ$  for all other types) to opposite the indication rail.

If you change the indication rail position, do not forget to reposition the switches too!

**The operating principle of the WEKA switches is based on the magnetic field of the bar magnet. In no circumstances should iron parts such as screws, mounting brackets, bolts etc. be anywhere near (approx. 10cm) or attached to the magnetic level indicator.**

A deviation of the magnet field due to iron parts located too close to the level indicator will influence the proper function of the level indication as well as accessories.

**IMPORTANT: Test and Operating Pressure, as well as Operating Temperature, as shown on the nameplate 7) of the level indicator must not be exceeded.**

### 3. Troubleshooting

#### **Problem**

No visual indication in spite of a sufficiently high liquid level in the vessel

#### **Possible reason**

- Process valves are shut off
- Sticking of the float in the standpipe
- Float leakage causing float to fill and sink
- Float is attracted by iron parts close to the level indicator.

#### **Remedy**

- Open the process valves
- Open service flanges and thoroughly clean standpipe and the float.
- Replace float
- Remove all iron parts

Failure of magnet switches in spite of visual indication

- Switch wired incorrectly
- Switch in wrong position
- Switch failure due to excessive temperature or electrical load

- Compare wiring diagram with switch contact arrangement
- Correct switch position cable up or down and opposite indication rail
- Replace switch. Check actual operating temperature and/or reduce switch load i.e. with an auxiliary relay.

Magnet switch closes but does not open again

- Hysteresis between on and off position. The bar magnet cannot reach the 2<sup>nd</sup> switching point.

- Raise or Lower the switch in axial direction by 5 to 10 mm so that the floats magnet can reach the 2<sup>nd</sup> switching point.



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