PHÖNIX CONTROL
Founded 1981

PHÖNIX CONTROL Méréstechnikai és Alkatrészgyártó Kft.

Magnetic LevelGauges Types 710.098 -710.323

INSTALLATION / ASSEMBL INSTRUCTION

Contents

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PHÖNIX Magnetic Level Gauges are measurement equipment and are to be treat well. We require the knowledge of the legal regulations, accident prevention regulations and rules of technology over the installation conditions and the operation of Level Gauges. Special care has to be taken into account at the assembly.

Use as agreed:

The Level Gauges are exclusively built for showing a filling level corresponding with the accompanying container. Magnetic switches or remote controls from Phönix can in addition be installed.
The manufacturer takes on the responsibility about the execution as agreed in accordance with customer details. The customer takes on the responsibility about the assembly as agreed and use. If not agreed differently, the Level Gauge is designed for static operating conditions in the context of the pressure and temperature limiting values confirmed in the order. Dynamic use is permitted in accordance with AD-S1, item 1.4.
Operations in accordance with AD-S1, item 1.5 are only permitted if a necessary release has in writing this one for the customer got of the manufacturer to this.
In the case of vibrations e. g. by pumps, compressors, to be expected the customer has to provide a sufficient vibration recession.
The customer makes sure that exothermic reactions or spontaneous gaseous phase formation of the medium is excluded.
Attention: If the medium is water and the danger of icing-up is given, the water for the purpose of avoidance to float or indicator tube of damages, is to drain from magnetic level gauge tube or providing a heating.

The float may not be operated at liquid level changes faster than 1 m/s. This may be ensured by an appropriate orifice mounted into the connection between vessel and gauge. Magnetic level gauges made of plastics may not be used in Ex-areas because of the danger of electrostatic charge. For applications in zone 0 you have to take care that the limits for process temperature and pressure are within the temperature class and the permissible pressure range of 0,8 to 1,1 bar in the container with combustible atmosphere.

If the magnetic level gauge is to be operated beyond explosive atmosphere conditions the type test certificate may be used as a guideline. In this case additional tests to be performed at these special conditions are recommended.

1.0. Delivery control

1.1. Scope of supply

The Magnetic Level Gauges are delivered in assembled condition. These consist:

- The gauge pipe, if necessary with drain or vent valves and und assembled
- Indicating scale

as well as packed separately in a carton and fastened to the gauge pipe

- A float
- Spare gasket
- An alignment magnet
- An installation/assembly instruction

only for type 710.200 - 710.323 packed separately

- A transmitting linkage with magnet system

and if ordered in addition:

- Magnetic level limit switches type 740
- Level transmitter type 745
- Connection valves

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1.2. Checking the completeness of the shipment

The completeness of the shipment has to be checked when unpacking. Provided that not agreed particularly, the device travels on the risk of the customer. Possible damages in transit can be immediately asserted under enclosing the documentation according to the legal regulations.

1.3. Intermediate Storage

If the assembly doesn't immediately take place after the delivery, the Level Gauge must being stored so much that no negative influences can have an effect. We recommend a dry storage place at temperatures not below 0 degrees Celsius without additional other objects stacked on this.

1.4. Safety note operating conditions

Before any further steps the customer shall assure whether the operating conditions agreed upon are still valid so that the device can be used for the application. Especially take care of the essentials pressure, temperature, media and special loads.

For application in explosive atmosphere please take care of the chapter „Use as agreed"!

2.0. Assembly

2.1 Check before assembly

The center distances of the connections of the Level Gauge are worked with a tolerance of ±1 mm to 2 000 mm of length, furthermore ±2 mm executed by. Connection degrees of the container have to be checked by the customer before assembly.

The bypass gets now direct at the container or at the lock valves assemble.

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2.1.1. Safety note installation

The magnetic level gauge shall be lifted smoothly in axial direction with a textile hoop. Please protect the indicating scale, switches and level sensors if mounted. Please use always the appropriate seals regarding size and material.

The torque to be applied corresponds with the standards used in pipe works. The device shall be mounted stress-free. The connection studs are designed to bear the device weight and the internal pressure in static condition. For additional stress we recommend to use additional supports.

ATTENTION: In principle, we recommend the installation of lock valves!

Before assembly the dust seals have to be removed from the openings of the valves or the Level Gauge.

ATTENTION: measures are to be carried out from customer, that concussions and /or vibrations (notice outer plant wind!) will not be transferred to the device. If mounts or supports should be necessary, ask the experts of PHONIX. All measures, being executed, do not allow to not impairing the function ability of the magnet Level Gauge. No magnetizable parts at this or in an immediate proximity of this one Indicator use!

2.2. Installation float

ATTENTION: The swimmer is made of thin-walled material and therefore are to be treated with care.

Types 710.100 - 710.160

As a rule, the float is brought into the device from below. In special cases the installation from above can be required. This must be known before.

Types 710.200 - 710.323

At this equipment becomes the float before installation with the assignment linkage the magnet system screwed together and then according to the local conditions brought in from above or from below into the bypass vessel.

ATTENTION: Identification of the float "top" is to recognize! The customer has to check, that the float data (marking) corresponds to at least the operating conditions.

The float must be cleaned from particles, the magnet system collected.

The degree flange becomes after control of the seal (if required exchange) assembled again. Notice table 1.

Tabelle 1 Type	**Screw starting torque** Dimension	 Torque in Nm
710.098, 710.104	M 12	50 Nm
710.100, 710.110	M 16	75 Nm
710.120	M 20	110 Nm
710.1T0, 710.140	M 24	150 Nm
Plug	G ½“, ½“ NPT	80 Nm
Plug	G 5/8	100 Nm
Plug	G 3/4	120 Nm

2.3. Pressure and leak test

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ATTENTION: For all examinations and uses, in principle, the details are up the type plate authoritative!

Strength test

2.3.1. Every device is be pressure tested in the work. Should at building site a strength examination (system pressure examination) be required, float must be removed.

Test pressure may not exceed ***1.43-times*** of the pressure indicated on the type plate. **Leakage test**

Check of the leakage to the outside is carried out after the installation of the float by dry air or nitrogen at 6 bar; in exceptions maximum at 1.1 times the maximum permissible operating pressure.

2.3.2.

Installation of magnetic switches

Electrical contact devices are mounted opposite the indicator device by 90° in height of the desired switching points with the enclosed fastened. Pay attention:

2.4.

- Mount right contact for max or min at right position
- Initialize contact

Further information for the assembly of the switches are found in the Operating instructions for the chosen switch type.

Safety hint for operating electrical devices

When electrical switches or level sensors are used the customer shall ensure to take care of all regulations applying to.

2.4.1

2.5. Aligning the level indicator

Before putting into operation the indicator plates have to be aligned with the enclosed align magnet. To do this move the magnet over the complete length repeatedly on the glass plate of the level indicator. In principle, the orientation may only of the front of the level indicator and only by the original PHONIX align magnet. It has to be checked whether all indicator plates take the correct position according to the movement direction. The plates must be aligned with the "bright" side before flooding the device. The align magnet has to be kept safe by the person responsible.

ATTENTION: Every manipulation with magnets at the level indicator or the contact devices can lead to faulty alignment and faulty switches.
For the avoidance of a malfunctioning it is to be also guaranteed that the installed indicator with the three (180° turned) indicator plates inserted inversely at an end shows always downward.
These three lower indicator plates serve float control. They are lower than the lower connection pipe. Only one sunk float therefore a faulty one can "dark" shift the three plates. A faulty float must be exchanged. For ordering a substitute float following information are needed:

- PHONIX-Commissions-No.
- Type of Level Gauge
- Pressure, temperature, density, medium and material

3.0. Putting into Operation

The float swims on the liquid entering the bypass vessel on. The magnet system of the float turns the indicator plates over so that the "dark" side gets visible. After the settlement of the liquid level in the container the dark indicator plates show the current liquid level.

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The float may not be operated at liquid level changes faster than 1 m/s when used in explosive atmosphere. This may be ensured by an appropriate orifice mounted into the connection between vessel and gauge.

If the level gauge is equipped with lock valves according to our recommendations, proceed as follows:

- Close drain and vent valves
- Open **lock valve** at **upper** connection pipe **slowly** (be beware of gas or steam)
- Open **lock valve** at **lower** connection pipe **slowly** (beware of liquid)

ATTENTION: This order has to be followed otherwise the float will be damaged.

3.1 Routine repair, maintenance and inspection

Spare parts recommended exclusively by us have to be used to the routine repair. Repairs must be coordinated in writing with us since otherwise ours Guarantee and responsibility goes out.
Normally a maintenance is not necessary. In order to preserve float function, collection of mud and floating substances in the lower indicator standpipe should be removed from the customer at fixed intervals.

The customers has to provide for the compliance for his plant the demanded inspection intervals.

With indicators by steam jacket covered internal welding seams a leak test of the pressure chamber is to be accomplished in intervals which can be specified by the operator. Thus one of process medium is subjected to welding seam its crossing into the heating cycle to be recognized and avoided in the case of corrosion-conditioned leakages.

If the magnetic level gauge is to be used in explosive atmosphere it shall be equipped with a damping element in the drain flange.

3.2 Compliance with the design boundary conditions

4uring the complete operating time the design boundary conditions according to delivering order may be not exceeded.
At change of the specified medium the customer has to check whether the material furthermore the device as well as the seals are suitable.
The customer has to provide if necessary for fire protection facilities to the avoidance of an impairment of the device.

3.2.1 Safety measures at maintenance works

During maintanance please take care that no expansion or leakage occurs. Always depressurize completely before starting the work. Take care of the relevant safety and environment regulations. When you exchange the indicating scale please take care of the repulsion of the spring during dismounting.

3.2.2 Safety measures when cleaning

Use a wet cloth only (see also sign on device).

Caution!	**Achtung!**
Static charge possible. At cleaning and maintenance works taking into account: **Use only damp cloths**	Elektrostatische Aufladung möglich. Bei Säuberungs- und Wartungsarbeiten beachten: **Nur feuchte Tücher benutzen.**

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