

Limit indicator GWG - type GWD -issue 2

Only valid in combination with issue 1: Description and CE marking



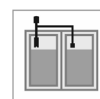
with / without loose
wall fitting type 905



with assembled wall
fitting type 905



with level gauge
type FSA



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ABOUT THE MANUAL



- This manual is part of the product.
- This manual must be observed and handed over to the operator to ensure that the component operates as intended and to comply with the warranty terms.
- Keep it in a safe place while you are using the product.
- In addition to this manual, please also observe national regulations, laws and installation guidelines.

SAFETY ADVICE

Your safety and the safety of others are very important to us. We have provided many important safety messages in this assembly and operating manual.

✓ Always read and obey all safety messages.



This is the safety alert symbol.

This symbol alerts you to potential hazards that can kill or hurt you and others. All safety messages will follow the safety alert symbol and either the word "DANGER", "WARNING", or "CAUTION". These words mean:

⚠ DANGER describes a **personal hazard** with a **high degree of risk**.
→ May result in **death or serious injury**.

⚠ WARNING describes a **personal hazard** with a **medium degree of risk**.
→ May result in **death or serious injury**.

⚠ CAUTION describes a **personal hazard** with a **low degree of risk**.
→ May result in **minor or moderate injury**.

NOTICE describes **material damage**.
→ Has an **effect** on ongoing operation.

i describes a piece of information ✓ describes a call to action

INTENDED USE

Operating media

- Diesel fuel
- FAME
- Vegetable oil
- Fuel oil
- Bio fuel oil
- Other operating media upon request.



⚠ WARNING Escaping, liquid fuels such as fuel oil:

- are hazardous to the aquatic environment
 - are inflammable category 3 liquids with a flash point > 55°C
 - can ignite and cause burning
 - can cause injury through people falling or slipping
- ✓ Capture fuels during maintenance work.



You will find a **list of operating media** with descriptions, the relevant standards and the country in which they are used in the Internet at **www.gok.de/liste-der-betriebsmedien**.



Place of operation



⚠ DANGER May not be used in potentially explosive areas.

Can cause an explosion or serious injuries.

- ✓ Must be installed by a specialised company in accordance with local industrial health and safety regulations.
- ✓ Installation outside the defined EX protection zone.

Installation location

- not suitable for outdoor use

Use in areas prone to flooding

NOTICE Malfunctions caused by flooding.

- ✓ Suitable for installation in areas at risk of flooding only to 10 m water height.
- ✓ Provide for leak-tightness between insert and tank using gasket and sealing material, respectively.
- ✓ Upon flooding, the limit indicator must be replaced.



INAPPROPRIATE USE

All uses exceeding the concept of intended use:

- e.g. operation with different operating media,
- operation with inflammable operating media of cat. 1, 2 or 3 with a flash point $\leq 55^{\circ}\text{C}$
- outdoor use
- changes to the product or parts of the product
- installation in a potentially explosive area
- installation in tanks not described in issue 1 in **table 1**
- installation in pressurised tanks

USER QUALIFICATION

Installation, start-up, maintenance and restoration of the product may only be commissioned to such companies constituting specialised companies for this work in the meaning of § 62 of the AwSV and additionally have knowledge in the field of fire and explosion control if this work is performed on containers with stored liquids with a flash point $\leq 55^{\circ}\text{C}$. This does not apply if the system is excluded from this obligation to be installed by a specialised company according to national regulations. These will simply be referred to below as "specialised company".

Work on electrical parts may be carried out only by an electrician qualified according to VDE regulations or by an electrician who is qualified according to local regulations.

The specialised company and the operator must observe, comply with and understand all of the following instructions in this assembly and operating manual.

ASSEMBLY

Before assembly, check that the product is complete and has not suffered any damage during transport. **ASSEMBLY are to be carried out by a company specialised.**

See USER QUALIFICATION!



The specialised company and the operator must observe, comply with and understand all of the following instructions in this assembly and operating manual. For the system to function as intended, it must be installed professionally in compliance with the technical rules applicable to the planning, construction and operation of the entire system.

DETERMINING THE ADJUSTING DIMENSION X

NOTICE

The adjusting dimension **X** mentioned in the certificate of suitability for intended use of the building inspectorate regarding the tank, the filling system or in this manual must be observed.

- Determine the battery tank system and the number of connected tanks (battery tanks).
- Please find the adjusting dimension **X** in the tables below and take into account the specific installation situation for limit indicators.
- The control dimension **Y** serves for verifying whether the limit indicator has been set to the height according to the tank.
- Determination or calculation of the adjusting dimension **X**, possibly pursuant to the options included in **issue 1 from table 6**.

• **Table 1:** Please find the installation dimension **a**:

→ Direct installation on tank ceiling and tank crown, respectively, pursuant to figure 1 a:

$$X = a$$

→ Installation into an insert G1 pursuant to figure 1 b:

$$X = a + k$$

Table 1: Steel tank and steel battery tanks pursuant to DIN 6620

For above-ground storage with filling from below.

Battery tanks using a joint connecting pipeline pursuant to **DIN 6620-2**.

- Determine the number of tanks connected to form the battery.
 - Check tank height for compliance with DIN 6220-1, **H = 1500mm**.
 - Is the tank equipped with a bushing: determine the height **k**.
 - Please find the installation dimension **a**:
 - **V** = rated volume of the tank or the connected tanks
- Observe the installation location of the GWG pursuant to **figure 2** and **figure 3**!

Example:

Number of connected tanks: 4

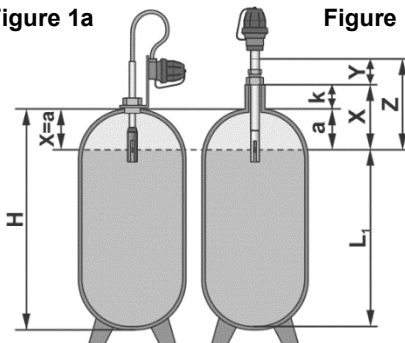
V = 6m³ **H** = 1500mm: complied with

k = 30mm made of brass

a = 137mm from table

Result: X = a + k = 167mm

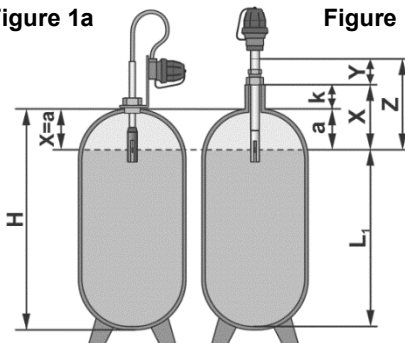
Figure 1a



→ **X = a**

Direct installation on tank ceiling and tank crown, respectively

Figure 1b



→ **X = a + k**

Installation into an insert G1

Tanks according to DIN 6620-1

V [m ³]	Number of connected tanks	a [mm]
1	1	254
1.5		209
2		187
2	2	187
3		164
4		150
3	3	164
4.5		146
6		137
4	4	150
6		137
8		130
5	5	142
7.5		131
10		126

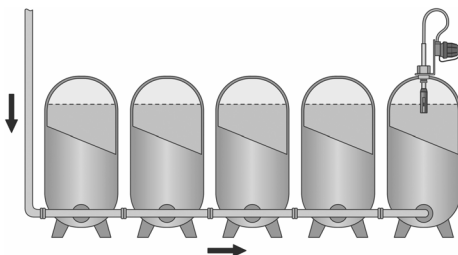


Figure 2: Install the limit indicator on the last tank, when looking in the filling direction.

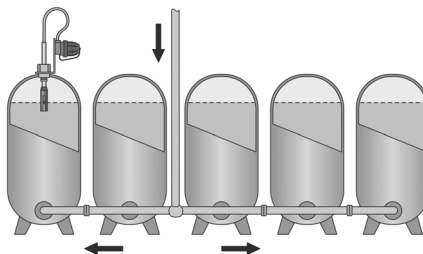


Figure 3: Filling from below and centre: Install the limit indicator on the last tank, when looking in the filling direction, but closer to the vertical filler line.

Table 2: Steel tanks according to DIN 6625 (ÖNORM C 2117)

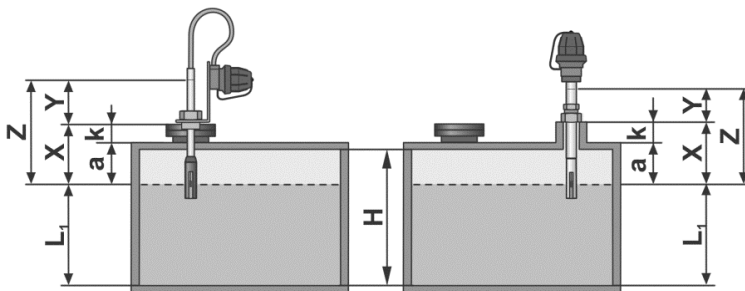


Figure 4a

Figure 4b

- Please find the installation dimension **a**:

→ Installation on cover of the access aperture pursuant to **figure 4a**:

$$X = a + k$$

→ Installation into an insert G1 on the tank ceiling pursuant to **figure 4b**:

$$X = a + k$$

H = tank height

k = height of the access aperture or bushing on the tank

V = rated volume of the tank

a = installation dimension

Example: tank pursuant to DIN 6625

H = 1500mm

V = 6m³

k = 30mm

a = 92mm

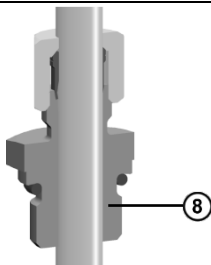
X = a + k = 122mm

H [m]	V [m ³]	a [mm]	H [m]	V [m ³]	a [mm]	H [m]	V [m ³]	a [mm]	H [m]	V [m ³]	a [mm]
1.0	1	137	1.25	20	61	2.0	5	128	3.0	4	208
	1,5	106		30	59		6	121		6	182
	2	91		40	59		8	112		10	158
	3	75		60	58		10	106		15	147
	3,5	71		80	57		15	99		20	142
	4	72	1.5	1	204		20	95		30	136
	5	66		2	134		30	91		40	138
	6	62		3	110		40	92		60	134
	10	55		3,5	104		60	90		100	130
	15	51		4	105		80	88	3.5	5	222
	20	50		5	97		100	87		10	184
	30	48		6	92	2.5	2,5	198		15	171
	40	48		8	84		3,5	172		20	164
	60	47		10	80		4	174		30	158
1.25	1	170		15	75		6	151		40	160
	1,5	132		20	72		10	133		60	155
	2	112		30	69		15	123		100	151
	3	93		40	70		20	119	4.0	10	209
	3,5	87		60	67		30	114		15	195
	4	89		100	66		40	116		20	187
	5	82	2.0	2	177		50	114		30	180
	6	77		3	146		80	110		40	182
	10	68		3,5	137		100	109		60	176
	15	63		4	139	3.0	3,5	205		100	172

INSTALLATION TO THE TANK

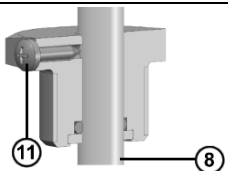
Assembly insert

After having DETERMINED THE ADJUSTING DIMENSION X, the insert must be locked.



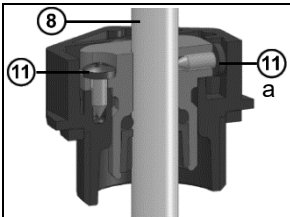
Insert G 1/2

- Set the determined adjusting dimension X.
- Clamp probe tube (8) using the cap nut of the compression fitting by hand or using a jaw spanner so that the probe tube (8) cannot be moved.



Insert G 3/4

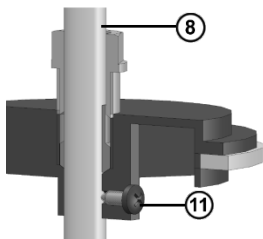
- Loosen the locking screw (11) on the insert.
- Set the determined adjusting dimension X.
- Tighten the locking screw (11) so that the probe tube (8) cannot be moved.



Screw-in insert G 1

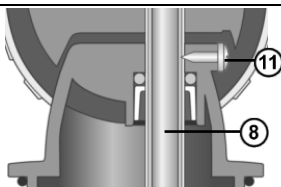
- Loosen the upper locking screw (11).
- Set the determined adjusting dimension X.
- Tighten the locking screw (11)a in such a way that the probe tube (8) cannot be moved.
- Screw-in the tank screw-in insert into the tank
- Tighten the upper locking screw (11).

- Connecting threads present on the tank larger than G1 can be brought to the connecting thread G1 of the insert by using commercially available reducers. Due to the partial increase of the fitting edge, the following is applicable: $X = a + k + k_{\text{Reducer}}$



Tank installation plate D70 for cap nut

- Measure the determined adjusting dimension X from the lower edge of the tank panel and adjust (according to the instruction of the respective tank manufacturer).
- Assembly according to the attached installation instructions Part no. 15 143 50



Insert level gauge FSA

- Loosen the locking screw (11) on the insert.
- Set the determined adjusting dimension X.
- Tighten the locking screw (11) so that the probe tube (8) cannot be moved.
- Observe the assembly and operating manual 15 276 51 and table 3 on the page below.

Installing a replacement limit indicator

Installing a replacement limit indicator without insert is only possible if the existing insert and the existing tank panel / tank flange, respectively, including the related attachment parts, is capable of supporting the probe tube with an outside diameter of 10mm. The adjusting dimension **X** can be found in the hitherto, present assembly manual of the GWG or tank manufacturer and must be set accordingly.

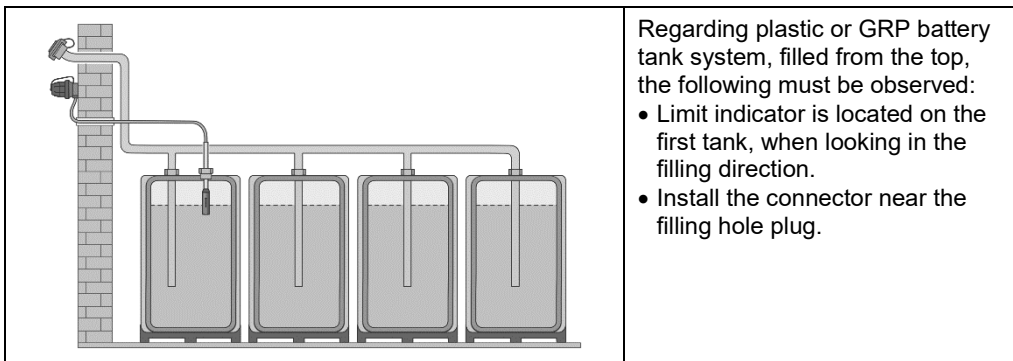
Install the insert according to its assembly manual.

Installation of the limit indicator to the tank

NOTICE The following must be observed when installing the limit indicator

- The probe tube of the limit indicator may not be cut to length or bent in any case. The cable inside the probe tube may be damaged otherwise.
→ Install the limit indicator with a suitable probe length.
- The limit indicator, the probe tube or the sensor may not be covered inside the tank, i.e. installation in a protective or calibration tube not admissible.
→ At level **L₁**, contact between medium and sensor could be impossible.
- The sensor may not make contact with the operating medium splashing from the filling tube, which would cause the filler valve on the road tanker to be closed prematurely. If the filling tube is arranged in the lower third of the tank, the sensor being wetted prematurely can be ruled out.
- Always install the limit indicator in a perpendicular position.
- The operating medium may not have any corrosive or chemical effect on the sensor, the sensor cover and the probe tube.

Installation location and installation position



Installing a limit indicator with fix adjusting dimension, **Z = X**

Limit indicators with mounted wall fitting 905 and fix adjusting dimension are only suitable for certain tank shapes. The adjusting dimension must match the specification of the tank manufacturer. When the limit indicator is configured fixedly, the adjusting dimension **X** cannot be changed.

Installation of the limit indicator to the tank

- Prior to installation into the tank, re-check the adjusting dimension **X** and control dimension **Y** for correctness.
- The installation location for the limit indicator regarding battery tanks according to DIN 6620 is shown in **table 1** in **figure 1a** and **figure 1b**.
- Regarding tanks pursuant to DIN 6625 with internal ceiling braces, the limit indicator must be installed in the same field as the ventilation line.

- Carefully insert the probe tube of the GWG through the designated tank bushing and tank nozzle, respectively; do not damage the sensor!
- Screw-in the insert into the tank bushing using a gasket or sealing materials manually and, fit the tank panel onto the tank nozzle using a gasket, respectively.
- The gasket and the sealing material, respectively, must not be damaged during installation so that the odour tightness and the tightness in flooding and risk areas is provided for.
- The notch as the mark for the probe length and the value for **Z** must be visible upon installation.
- If required, the probe tube protruding from the tank must be protected against mechanical loads.

• Table 3: Type GWD limit indicator with type FSA level gauge

	<ul style="list-style-type: none"> • For a detailed description, see assembly and operating manual type FSA level gauge, Order no. 15 276 51. • Type FSA level gauge and type GWD limit indicator are combined in one unit or designed to be equipped with a limit indicator. • Set the determined adjusting dimension X, as shown alongside.
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CONNECTOR

The connector is the interface between the limit indicator and the road tanker. This interface must be mounted directly next to the filling hole plug of the filler line.

If several systems with filling hole plug and limit indicator are located nearby, it must be ensured that the filling hole plug can be assigned unambiguously to the corresponding connectors of the limit indicator. The connector must be attached sufficiently. It must be possible to easily couple with the connection line of the controller of the overfill prevention mechanism.

The wall fitting is supplied separately and must be connected to the limit indicator.

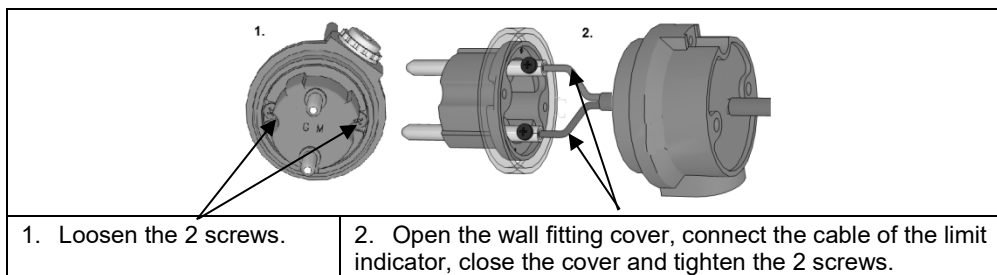
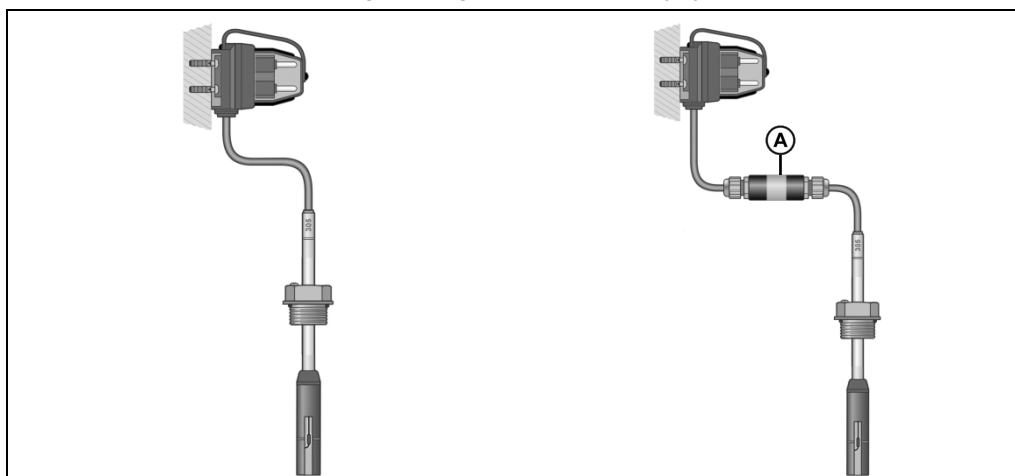


Table 4:

Standard connector Wall fitting – fitting for wall assembly type 905



- The wall fitting is supplied separately and must be connected to the limit indicator.
- The wall fitting must be attached sufficiently.
- The free end of the limit indicator's cable is routed perpendicularly to the ceiling or a nearby wall.

If the filling hole plug is farther away from the tank (e.g. regarding a central filling hole), limit indicators with cable connection fitting (A) (order no. 15 379 00) and wall fitting are used. The connection between the cable connection fitting and the wall fitting must be provided with a cable/line 2 x 1mm².

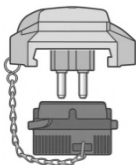
The maximum length may be: 150m for 2 x 1mm²,
250m for 2 x 1.5mm².

Assembled wall fitting

If the filling hole plug is located directly adjacent to the installation location of the limit indicator, limit indicators with assembled wall fitting must be used. For the type GWD limit indicator, the assembled wall fitting assumes the function of the connector.

Type 904 pipe fitting as with type GWS.

Filling hole plug for limit indicator



Instead of the wall fitting, it is also possible to use a filling hole plug for limit indicator type 906.

OPERATION

1. Using the connector, connect the limit indicator to the male contact of the overfill prevention mechanism of the road tanker.
2. Fill the tank upon approval.
3. Upon completion of filling, fit back the cap of the connector.

TROUBLESHOOTING

Fault signal	Action
Road tanker does not provide approval.	→ Check connector. → Check cable or replace the limit indicator. → MAINTAIN the sensor.

RESTORATION

If the actions described in TROUBLESHOOTING do not lead to a proper restart and if there is no dimensioning problem, the product must be sent to the manufacturer to be checked. Our warranty does not apply in cases of unauthorised interference.

MAINTENANCE

Upon proper ASSEMBLY and OPERATION, the product is maintenance-free.

	<p>NOTICE Malfunctions and contamination of the sensor in the sensor cover due to contaminated operating media.</p> <p>Proper operation is no longer provided for.</p> <ul style="list-style-type: none"> ✓ Remove the limit indicator from the tank! ✓ Perform a visual inspection →, sensor must be free! ✓ Carefully clean the inside of the sensor cover with a brush and a cleaning agent. ✓ Install the limit indicator into the tank and repeat CONTROL.
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DISPOSAL



To protect the environment, our electrical and electronic appliances may not be disposed of along with household waste.

At the end of its lifespan, each end user is obligated to pass old appliances to a district or area collection point, separate from household waste. This ensures that old appliances are disposed of properly and negative effects on the environment are avoided.

Our registration number for the electrical old appliances register (EAR) is: WEEE-Reg.-No. DE 78472800.

TECHNICAL DATA

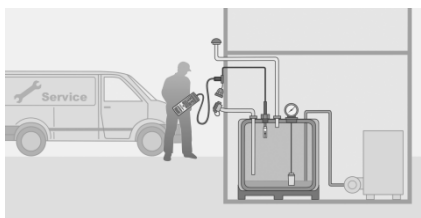
Ambient temperature	-25°C to +50°C
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WARRANTY

We guarantee that the product will function as intended and will not leak during the legally specified period. The scope of our warranty is based on Section 8 of our terms and conditions of delivery and payment.

**TECHNICAL CHANGES**

All the information contained in this assembly and operating manual is the result of product testing and corresponds to the level of knowledge at the time of testing and the relevant legislation and standards at the time of issue. We reserve the right to make technical changes without prior notice. Errors and omissions excepted. All figures are for illustration purposes only and may differ from actual designs.

FUNCTION CHECK

Upon electrical installation and within the framework of the repetitive inspections, the function of the GWG must be checked and documented using a precision instrument. An annual function check is recommended; this check can be performed while filling the tank/battery tank in combination with GWG and the overfill prevention mechanism on the road tanker. See OPERATION.

Limit indicators are safety devices, so they have to be tested at least every 10 years for their correct functioning. This function check also includes a test of the deactivation and the response time ($\leq 1.5s$) through immersion in liquid. The check is to be carried out using the suitable test equipment. The check is to be documented. If the determined response time is $> 1.5s$, the GWG shall be replaced immediately.

Recurring FUNCTION CHECK

The safety equipment was subjected to a recurring FUNCTION CHECK and worked correctly at that time.



Place, date

Specialised company (stamp, signature)

INSTALLATION CERTIFICATE FROM SPECIALISED COMPANY

I hereby confirm that the following safety device(s) was/were installed correctly:

- To be kept by system operator.
- Important for any warranty claims.



<input type="checkbox"/> Type GWD limit indicator	<input type="checkbox"/> F-Stop GWG-FSS ^{*)}
<input type="checkbox"/> Type GWS limit indicator	<input type="checkbox"/> F-Stop GWG-DEV ^{**)}

in accordance with the applicable assembly and operating manual(s). Upon completion of the ASSEMBLY, the safety devices were put into service and subjected to a CONTROL. At the time of startup, the safety device(s) worked immaculately.

The safety device(s) was/were installed into a tank / battery tank system:

Tank manufacturer			
Fabricate no.			
Verification of fitness for use of the construction product			
Tank pursuant to DIN / EN			
Rated volume per tank in litres			l
Number of tanks for battery tank system			
Maximum admissible level			% (V/V)
GWG probe length	Z	=	mm
GWG adjusting dimension	X	=	mm
GWG control dimension	Y	=	mm
Batch number on GWG probe tube			
In the event of GWG replacement: A limit indicator with certificate of suitability for intended use issued by the building inspectorate was removed			
In the event of GWG replacement: A limit indicator with adjusting dimension was removed	X	=	mm
F-Stop GWG FSS probe length	Z _{FSS} ^{*)}	=	mm
F-Stop GWG FSS adjusting dimension	X _{FSS} ^{*)}	=	mm
F-Stop GWG FSS control dimension	Y _{FSS} ^{*)}	=	mm
F-Stop GWG-DEV: rated response over-pressure controller**)		=	mbar

Address of operator

Address of specialised company

Place. date

Specialised company (stamp, signature)

*) Enter values of F-Stop GWG FSS

**) Enter values of F-Stop GWG-DEV