

## GENAP INSTALLATION INSTRUCTIONS

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### **GENAP CLOSED WATERSTORAGE SYSTEM (GenaFlexstore®)**

Genap closed waterstorage system for waterstorage tanks, standard watertank type WSA with maximum height until 3.50 meter and diameters varying from 3.50 m. up to and including 26,50 m.

#### **Materials:**

Waterstorage tank (in case part of delivery)

- Galvanized corrugated steelplates
- Zincrolyte coated bolts, nuts and washers

Tankliner

Tankliner consist of an top-and underliner which are merged to one single unit

#### **Bottom liner:**

- Aquatex® PVC 1.0 mm; for rain- clean and drinking water storage
- Fecatex® 1.0 mm; for recirculation- and drainwater storage

#### **Floating Top liner:**

- Genatex 900 Plus (green)

Protection sheet

Polyester non-woven 250 gram/m<sup>2</sup> applied as protection sheet between tankwall and tankliner.  
Polyester non-woven 250 gr/m<sup>2</sup> applied as bottom protection sheet on the bottom of the tank.

Accessories

The closed waterstorage system is delivered completely with the following accessories:

- De-aeration (deventing) unit central in the floating topliner
- Tank walloutlet 63mm. (including reinforcement plates for clamping)

Pipes in/to the tank which are part of the groundwork are not part of the delivery by Genap and are therefore also not installed. These pipes have to be installed before the installation of the closed liner system; connections to the bottomliner have to be in accordance with the locations as specified by the dealer/customer at order input. Outlets in the bottomliner are **always** prefabricated in factory. Installation afterwards (on site) is **not** possible!

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### **Inspection of the underground/soil:**

- The underground/soil must be free of sharp particles, broken stones, beets and other kind of cultivation or materials which can damage the liner.
- The underground/soil should be dry, walkable and have a sufficient carrying capacity in order to carry the weight and contents of the tank.
- The concrete plates (foundation) should be completely covered in the sand/soil; the sand/soil should be firm enough. Waterpressure may not compress the sand/soil as far as the sharp edges remain or become uncovered; which might damage the liner.
- Pipes should protrude at least 30 cm. above the bottom liner
- Determine the centre of the tank and check the circumference and diameter.

### **Installation:**

Install the closed tankliner in the centre of the tank and remove the packaging. In the following installation instructions with respect to the installation of the closed liner waterstorage system we also refer to the installation drawings, which are also enclosed.

1. For a good foundation of the system the first tankring has to be installed upon a circle shaped foundation made of f.i. an interconnecting circle of concrete plates (min 30cm x 30cm) in order to prevent prolapsing of the tank.  
The first tankring is allowed to be installed maximal 50 cm under soil level. In case the tank is installed on soil level, a soil embankment of at least 50 cm height should be applied around the tank. Possible alternative is a concrete ring foundation, in case this concrete ring is situated on soil level the first tankring should be connected to the foundation by means of anchors (can be ordered separately).

2. The steel tankwall has to be built up cilindrically with respect to the centre of the tank. Depending on its height the tank consists out of several, in vertical direction placed/installed corrugated rings.

Installation of tankwall is as follows:

- Install first ring (use therefore the thickest tankplates) and mount the bolt/nut connection from the inside to the outside of the tank; the washer and nut are located at the outside of the tank. Nuts should be tight loose, the shape of the ring should be checked on diameter and roundness.
- Install 2nd ring, in half plate connection. This plate overlaps the first ring at the **outside**. Nuts tight loose, check shape and tight definitely the nuts of the first ring..
- Install 3rd ring, in half plate connection. This one overlaps the 2nd ring at the **outside**. Nuts tight loose and tight definitely the nuts of the 2nd ring.
- 4th ring, like 3rd etc.

After the nuts of the top ring have been tightened definitely, the tank should be checked again on roundness.

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**WATCH OUT!: EMPTY TANKS ARE WIND SENSITIVE, IF NECESSARY THE TANK SHOULD BE TIGHTENED TO THE SOIL!!**

3. Pipes in the groundwork and situated inside the tank should protrude at least 30 cm. out of the bottom. Check the pipes on sharp edges and grind them if necessary.
4. **Outlet in tankwall for draining the rainwater from the floating top liner**

**Existing tanks:**

In the tank the following holes have to be drilled as function of the tank height:

Tank height [nr. of rings]	Position hole Ø80 mm. in tankplate
3	In <b>tankring nr.2</b> on the <b>4<sup>th</sup></b> corrugation from the <b>topside</b> of the tankplate
4	In <b>tankring nr.3</b> on the <b>4<sup>th</sup></b> corrugation from the <b>bottomside</b> of the tankplate

Holes are in the centre of the tankplate in platelength direction.

For determination of the location of the holes for the reinforcement plates use the plate as template. See also enclosed drawings: 3D11A0813 and -0814 for positioning and fastening of the reinforcement plates at the walloutlet location.

**New ordered Genap tank:**

Holes are prefabricated in the concerning tankplate; install this plate and delivered reinforcement plates in the tank as described in the enclosed drawings: 3D11A0813 and -0814

5. Install the bottom protection sheet as flat as possible without folds. Overmeasure on the bottom is put against the tankwall in upward direction. For existing tanks: always replace the protection sheet. Cut out the protection sheet on the pipe locations; cut outs should be as small as possible and fit tight to the pipes.  
Install the wall protection sheet with an overlap of 10cm. over the tankwall. Attach the wall protection sheet on the tankedge of the tank with the clamping profile. Overmeasure in height should be spread out over the bottom. The clamping profile should be fixed to the tank every 40 cm. by means of a tie-wrap in the upper holes of the tankplate; the clamping area of the tie-wrap must be located at the inside of the tank.  
At the location of the hole for the overflow in the tankwall, the inner reinforcement plate has to be installed first behind the protection sheet; next the other plate is installed at the outside of the tank (see drawing: 3D11A0814).
6. Unfold the closed tankliner according the delivered drawing. The bottom of the closed tankliner should be pulled out completely and smoothly and should join the tankwall/bottom

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area all around the circumference of the tank.

Take care during positioning of the bottom of the closed tank liner that the outlets are positioned above the pipes in the bottom (= zipper in the floating topline).

Pull the wall of the tankliner on one place over the tank edge and start from this point out to pull the wall liner over the tank edge. The seam is installed at the outside of the tank in the 3<sup>rd</sup> corrugation by means of cord and hooks. Install the hooks on the ends of the lowest bolt line of the top tank plates and secure them with an extra nut; lace alternating between the eyelets in the seam and hooks to fasten the tankliner. Always fasten the end of the cord to the eyelet in the seam; never connect the cords mutual to one single cord without fastening seperately every cord to an eyelet! Use eventually temporary clamps in order to make the installation easier. Check whether after fastening the tankliner, the seam is located in the 3<sup>rd</sup> corrugation.

7. Pipe(s) which protrude(s) out of the bottom and push in the closed tankliner are good visible and accessible after opening the zipper(s).  
Pull the prefabricates sleeve of the outlet straight over the pipe till it gets stuck in the conical sleeve; put some tension on the sleeve such a flat area of approximately 1 cm. is created in the sleeve at the top of the pipe. Cut the upper piece of the sleeve above the pipe off. Pull the sleeve further over the pipe untill a harmonical shape arises at the foot of the pipe; keep the last 10 cm. of the sleeve straight; this is necessary in order to apply the tape system in order to create a watertight connection.  
Put the Genastrip tape at the sleeve-pipe junction; half of the width on the sleeve and the other half on the pipe, which gives an overlap of 25 mm. each. The Genastrip is applied in two rotations under tension around the pipe with an 100% overlap. After this a bandage of Genatape is applied. Start on the pipe, 10 cm above the sleeve and wrap the tape with a minimum overlap of 50% in sleeve direction. Pull the Genatape tight (pretension), this creates a compressive bandage around the Genastrip which is absolutely watertight. Wrap with the given overlap to at least 10 cm on the sleeve -the Genatape should be Covered completely- and finish with two rotations/wraps **without any stress on the tape**. This prevents the end of the tape from peeling. Keep always the top part of the pipes (5 cm.) free; this area is used for pipe connections and or appendages.
8. Check the complete tankliner on fitting and possible damages (f.i. location of stepladder).
9. Cut opening for the overflow in the tankliner (Ø 80 mm). Also the underlying wall protection sheet should be removed. Apply the reservoir outlet in accordance with drawing: 3D11A0814.

### **Overpressure/Level indication:**

The execution of the overpressure/overflow and level indication facility in the closed liner system is a choice of the pipefitter; possible options are: overflow outside the tank and the use of pressure indicators/sensors.

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Possible connections to the tankliner originate from this system have to be ready when the tankliner is installed. For the option of overflow pipe outside the tank it has to be considered that the pipe remains frost proof, f.i. by the use of an aeration pump. The overpressure/level indication facility takes care that the system is not (over)pressurized by pumping too much water in the closed system. For the given options see also enclosed drawing: 3D11A0814.

### Installation conditions:

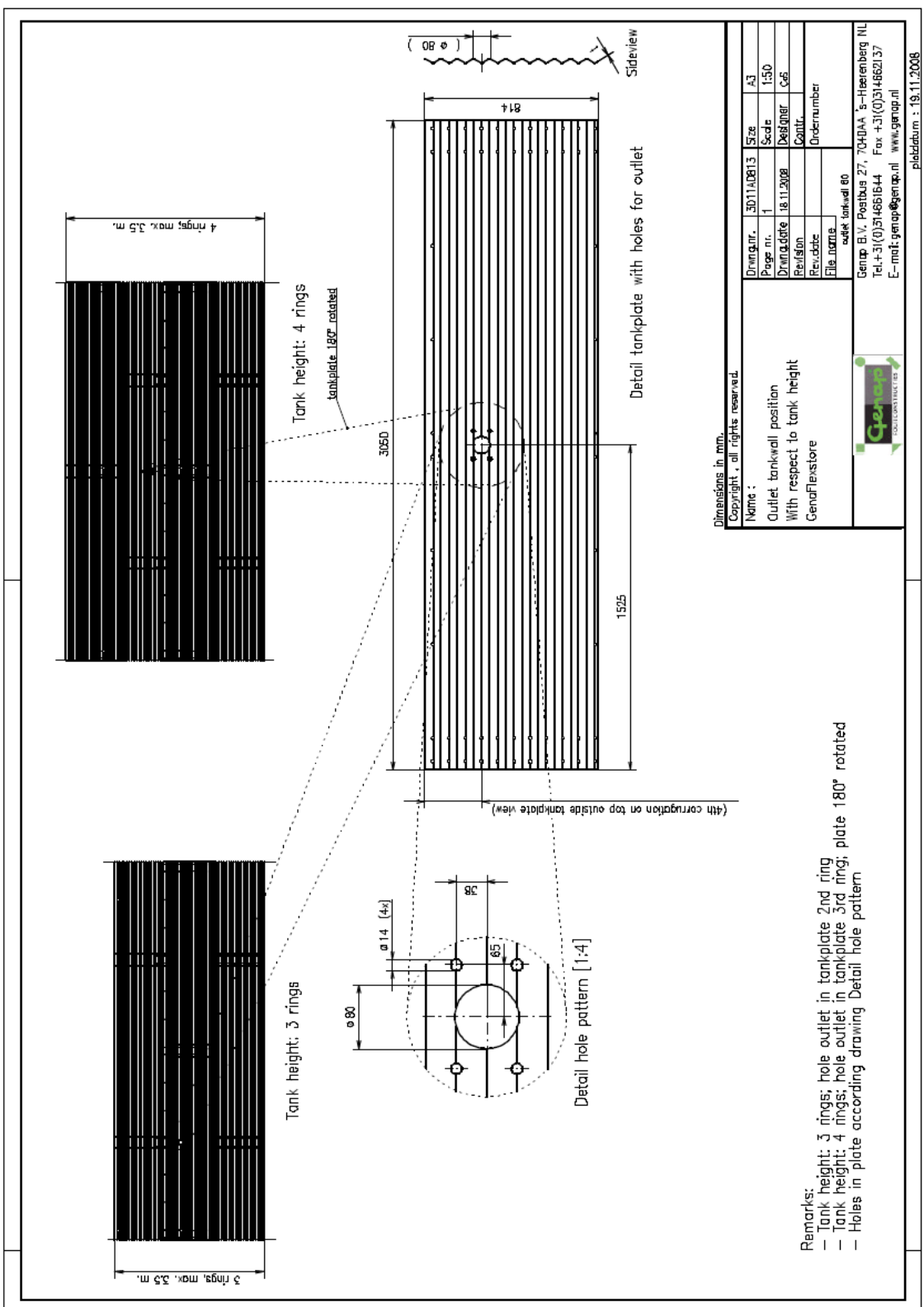
The installation of the closed tankliner is advised to do under the following outside conditions:

- windforce < 3 Bft.
- temperature > 5°C

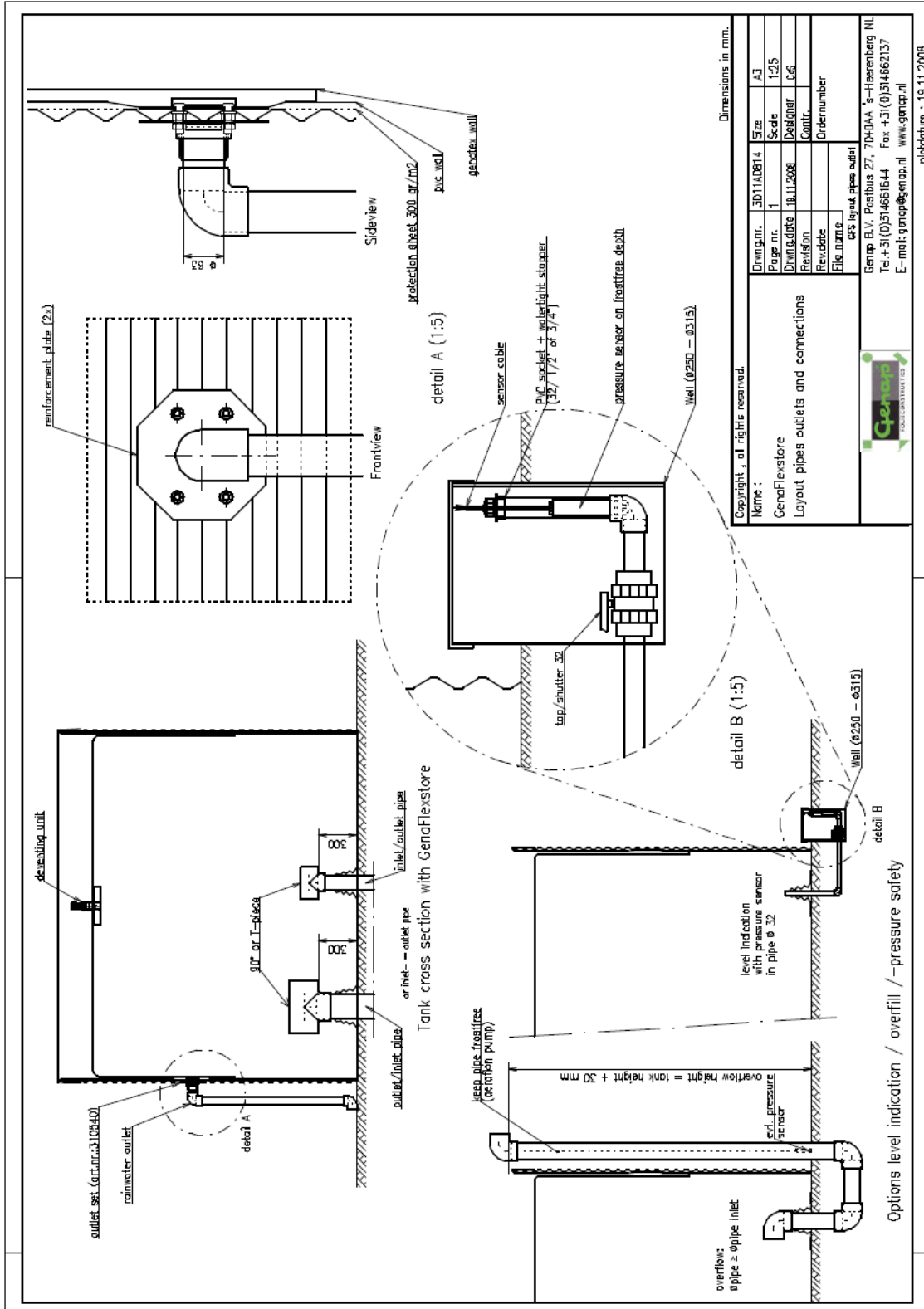
### After care/maintenance guidelines:

- For a long succesfull use and long lifetime period for the waterstorage system, the installation instructions should be followed and respected.
- A regular inspection of the system is advised especially after heavy winds/storms. During the inspection the closed liner system should be checked on (mechanical) damages. In case of damages these should be repaired.
- The waterlevel in the closed liner system has to be minimal 30 cm.
- Zippers in the floating top liner are primary for installation purposes; the zippers are **waterresistant**, which means that under certain conditions a minimum of water or vapour could penetrate through the zipper; this is acceptable for the application.
- Try to avoid to pump air in the system; the presence of air has no negative influence on functioning of the system. The enclosed air under the floating cover part can be withdrawn by filling up the system completely; the air will escape to ambient through the deventing unit which is in the centre of the cover.
- When ice-formation is present in or on the system, it is advised **not** to use the system (so no water should be drawn out of the system).
- When these guidlines/instructions are not -or insufficiently- respected; no claims on warranty are accepted.

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Name : GenapFlexstore  
Layout pipes outlets and connections

Dimensions in mm.

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Dringadate	18.11.2008	Deigamer	C66
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*Fig.1-Closed liner system short after installation; deventing unit central in the floating cover and overflow in the tank wall.*



*Fig.2-Closed liner system (GenaFlexstore®)*