

INSTALLATION AND OPERATION MANUAL



NEO 13.000 - 55.000 L FLAT TANK

(Standard)



Doc. no.: DORW5003e Version: 221213

NEO tanks are also available as an "X-Line" version for high ground water levels and difficult ground conditions. These can be identified by the letter "H" in the item number.

PREMIER TECH WATER AND ENVIRONMENT

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PT-WaterEnvironment.com





The information listed in this document must be observed at all times. Failure to do so will void any warranty.

Separate installation instructions are supplied for all Premier Tech-related accessory items.

You can download missing guides at <u>www.PT-WaterEnvironment.de</u> or request them from Premier Tech.

The components must be checked for damage & incompleteness while unloading/receiving the goods.



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1 IMPORTANT INFORMATION OVERVIEW

1.1 For the installation



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- Purpose of use: PE tank for underground storage of rainwater and other water tanks for treatment of household wastewater.
- Permitted soil height above tank (traversable by foot): **200 mm to 1500 mm over** tank shoulder.
- Ground water level GW: max. up to tank equator (including heavy rain events).
- In case of a groundwater level up to the tank equator and an earth cover < 300 mm, please contact our service department regarding buoyancy control.
- The superstructure (base course and cover) and permissible earth covering changes for areas that are driven on (see chapter 5).
- Use suitable **filling material** for the bedding ① and tank surround ②. Recommendation: **Round-grain gravel** with grain size of **8/16 mm** (for details, see chapter 4.3)
- Cover the layer of gravel above the tank with fleece
- In-situ base ③ must be sufficiently water-permeable (kf value > 5 x 10⁻⁶m/s). Otherwise, there is a temporary risk of high base water levels in the event of rain (built up of percolation water).
- Depending on the installation conditions, a ring drainage system and/or the heavy-duty NEO X-Line tank model may be required (please contact our expert team in this case).



- Before filling the material, fill the tank with 20 cm of water and manually **compact** the material in 300 mm layers. Insert filling material even in areas that are difficult to access (**recesses, the underside of the tank**). Do not sluice.
- Before backfilling, make sure that all connection seals are properly positioned and pipes are tightly installed to the connection pieces (conduct a leak test if necessary).
- After the installation, the tank and shaft systems must be surrounded by a layer of at least 200 to 300 mm of compacted filling material (round-grain gravel 8/16 mm) and **free of hollows**.



- ① bedding 200 mm (round grain gravel, 8/16 mm)
- (2) coating compacted in 300 mm layers (round grain gravel 8/16 mm)
- ③ contiguous soil
- (4) barrier layer, cohesive soil
- (5) fleece

6 excavated soil

1.2 Safety instructions

- The applicable accident prevention provisions as per BGV (German trade association provisions) C22 must be observed during all work. While accessing or walking upon the tank, a second person is required for safety.
- The applicable regulations and standards must be taken into account during all installation, assembly, maintenance and repair work, and so on.
- The tank cover must be kept sealed at all times (see chapter 4.6). When working on the tank, the open manhole must be highlighted and cordoned off.

1.3 Mandatory labelling

• All service water pipes and tapping points must be labelled with the words "Do Not Drink/Not Drinking Water" in accordance with DIN 1988 (DIN 1988 part 2, section 3.3.2.).

All service water taps with valves must be installed with child safety guards.



1.4 Master data for your NEO flat tank

Note the most important specifications for your tank. With these specifications, the Premier Tech service team can provide you with quick assistance at any time. These specifications are required if you wish to assert warranty claims (see the next page):

Tip: remove the label from the tank and attach it here.

If it is not possible to attach the label, copy the information circled above from your label to here.



2 TECHNICAL DATA FOR THE NEO STANDARD





2.1 NEO technical drawings

2.1.1 NEO 13.000 litres



2.1.2 NEO 55.000 litres





The volume of NEO tanks is expanded with the use of modular components. The ends of each tank are identical for every volume.

2.2 installation dimensions

Installation Dimensions NEO Standard Tanks		NEO 13.000	NEO 15.000	NEO 20.000	NEO 25.000	NEO 30.000
	Weight [kg]	450	510	660	850	1020
	Tank dimensior	IS				
	L [mm]	7200	8020	10620	13220	15820
	B [mm]	2300	2300	2300	2300	2300
	HT [mm]	1260	1260	1260	1260	1260
	Hzu / HV [mm]	1185	1185	1185	1185	1185
	HD [mm]	1415	1415	1415	1415	1415
	Hab [mm]	1145	1145	1145	1145	1145



	NEO	NEO	NEO	NEO	NEO		
	35.000	40.000	45.000	50.000	55.000		
weight [kg]	1190	1360	1530	1700	1870		
Tank dimensior	IS						
L [mm]	8020	8020	8020	8020	28820		
B [mm]	2300	2300	2300	2300	2300		
HT [mm]	1260	1260	1260	1260	1415		
Hzu / HV [mm]	1185	1185	1185	1185	1185		
HD [mm]	1415	1415	1415	1415	1415		
Hab [mm]	1145	1145	1145	1145	1145		
With well extens	ision VS20						
	NEO 13.000 – 55.000						
E [mm]	395						
ET [mm]	1655						
Ezu [mm]	470						
 With well extension VS60							
	NEO 13.000 – 55.000						
E [mm]	795						
ET [mm]	2055						
Ezu [mm]	870						
With spacer & v	vell extensio	n VS20 (min	max.)				
		NE	O 13.000 – 55	.000			
E [mm]	725-840						



ET [mm]	1985-2100			
Ezu [mm]	800-915			
With spacer 8 u	(all axtonsion VS60 (min_max)			
with spacer & w	well extension v500 (mmmax.)			
	NEO 13.000 – 55.000			
E [mm]	805-1240			
ET [mm]	2065-2500			
Ezu [mm]	880-1315			



The adapter ring and VS60 shaft extension can be cut for intermediate dimensions. Please follow the corresponding instructions.

3 TECHNICAL DATA FOR NEO STANDARD WITH FILTER SHAFT



3.1 Installation dimensions

- ET Installation depth (dt. Einbautiefe) E Earth covering over tank shoulder
- E Earth covering over tank shoulder
- Ezu Lower edge of inlet to surface level (dt. Zulauftiefe)
- Hzu Lower edge of inlet to tank bottom (dt. Zulaufhöhe)
- L Tank length
- B Tank width (dt. Tankbreite) HT Height of tank body (dt. Tankhöhe)
- HVHeight of supply line (dt. Höhe Versorgungsrohr)HDHeight of tank up to the upper edge of the tank dome
- HAB/Hab Outlet/overflow height (dt. Höhe Ablauf/Überlauf)









Installation dimensions NEO tanks with filtration well FI-1&2		NEO 13.000	NEO 15.000	NEO 20.000	NEO 25.000	NEO 30.000
	weight [kg]	450	510	660	850	1020
	Tank dimensions					
	L [mm]	7200	8020	10620	13220	15820
	B [mm]	2300	2300	2300	2300	2300
	HT [mm]	1260	1260	1260	1260	1260
	Hzu [mm]	1515	1515	1515	1515	1515
	HD [mm]	1415	1415	1415	1415	1415
	HV [mm]	1185	1185	1185	1185	1185
	Hab with FI-1 [mm]	1145	1145	1145	1145	1145
	Hab with FI-2 [mm]	1465	1465	1465	1465	1465
		NEO	NEO	NEO	NEO	NEO
		35.000	40.000	45.000	50.000	55.000
	weight [kg]	1190	1360	1530	1700	1870
	Tank dimensions					
	L [mm]	18420	21020	23620	26220	28820
	B [mm]	2300	2300	2300	2300	2300
	HT [mm]	1260	1260	1260	1260	1415
	Hzu [mm]	1515	1515	1515	1515	1515
	HD [mm]	1415	1415	1415	1415	1415
	HV [mm]	1185	1185	1185	1185	1185



Hab with FI-1 [mm]	1145	1145	1145	1145	1145	
Hab with FI-2 [mm]	1465	1465	1465	1465	1465	
With well extension VS	extension VS20 + filtration well					
	NEO 13.000 – 55.000					
E [mm]	630					
ET [mm]	1890					
Ezu [mm]			375			
With well extension VS	60 + filtra	ation well				
	NEO 13.000 – 55.000					
E [mm]	1030					
ET [mm]	2290					
Ezu [mm]	775					
With spacer & well exte	tension VS20 + filtration well (minmax.)					
	NEO 13.000 – 55.000					
E [mm]	1055-1170					
ET [mm]	2315-2430					
Ezu [mm]	800-915					
With spacer & well exte	well extension VS60 + filtration well (minmax.)					
	NEO 13.000 – 55.000					
E [mm]	1130-1565					
ET [mm]	2390-2825					
Ezu [mm]			875-1310)		



The adapter ring and VS60 shaft extension can be cut for intermediate dimensions. Please follow the corresponding instructions.



3.2 Outlet heights for the NEO Standard with filter shaft

Inlet DN 110 Supply pipe DN 110 Outlet/overflow DN 110 H_{zu}: height inlet H_v: height supply pipe H_{ab1-2}: height outlet / overflow

NEO	Hzu	Hv	H _{ab1}	H _{ab2}
13.000 - 55.000	1515	1515	1145	1465

4 INSTALLATION AND ASSEMBLY

4.1 Basic questions about the location before installing the tank

Clarify the following issues **before** installing the tank:

- Suitability of the soil for structural engineering in accordance with the DIN 18196 soil classification
- Maximum occurring ground/stratified water levels taking the water permeability of the in-situ base into account and observing the permissible earth covering:
 - Ground/stratified water must not rise higher than the tank equator (the middle of the tank) at any time, even temporarily (during heavy rain). Therefore, the in-situ base must be sufficiently water-permeable (kf value > 5 x 10⁻⁶ m/s).
 - In clayey, cohesive, less water-permeable soils, there is a risk of the built up of percolation water during heavy rain: The excavated pit fills with seepage water and the water level rises above the tank equator. The tank may be damaged as a result.



- Depending on the installation conditions, a ring drainage system and/or the heavy-duty NEO X-Line tank model may be required (please contact our expert team in this case).
- The issue of negative buoyancy must be assessed separately and is primarily relevant when the earth covering is relatively low and groundwater is high. Please contact our expert team in this case as well.
- Where necessary, request ground surveys from the responsible building authority / conduct seepage tests.
- See **permitted earth covering E** (traversable by foot, 200 mm to 1500 mm above the tank shoulder).
- Are there any **traffic loads caused by cars and/or trucks**? The requirements for the superstructure, shafts and earth covering then change. See chapter 5.
- Are the **correct shaft accessories** (VS20, VS60, adapter ring, etc.) for achieving the desired or required elevations for all lines (frost protection?) in place (for more information, see the technical data in the previous chapter 2 and 3)?
- **Minimum distance from buildings**. If the bottom of the excavation pit is below the lower edge of the foundation, the following applies:
 - Minimum distance from excavated pit to building = 2 x C
 - C is the space between the excavated pit and the lower edge of the foundation
 - If there is any doubt, consult a structural engineer.



• **Minimum distance from surfaces that are driven on**: If the tank is installed next to traffic areas that are driven on with heavy vehicles weighing over 12 t, the recommended minimum distance from these areas corresponds to the pit depth as a minimum (installation depth with shaft: ID):



Slopes/embankments: When installing the tank in the immediate vicinity (< 5 m) of a slope, mound or embankment, a statically calculated supporting wall must be erected to absorb the earth pressure. The wall must protrude over the tank dimensions by at least 500 mm in every direction and must be a minimum distance of 1000 mm from the tank:



4.2 Excavated pit and lines

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The area requirements for the excavated pit are calculated from the footprint of the tank, the working space width of at least 500 mm and the widening towards the top caused by the embankment angle. The maximum earth covering is 1500 mm above the tank shoulder. We recommend an earth covering of up to 1000 mm to allow for easy access.

The slope is to be created in accordance with DIN 4124 with an angle of slope of 45 to 80° (depending on the base conditions and installation depth). The subsoil must be level and even and must ensure a sufficient load-bearing capacity. On the base of the excavated pit, a 200 mm-thick level bedding ① consisting of 8/16 mm round-grain gravel is applied and well compacted.

To use the plant throughout the year, the tank and the water-bearing plant parts must be installed in a frost-free area (usually approx. 600 to 800 mm below the ground surface level). You can obtain precise specifications for doing so from the responsible authorities. Note that the supply line laid to the house must be protected from frost and the utility line in the garden must be drained before the frost.

The supply line should be laid down with a gradient of approx. 1 % to the tank. Any overflow line or outlet line should have a higher gradient than the supply line.

The duct for the supply line from the house to the tank must be laid with a sufficient gradient. We recommend installing a wall feed-through (sealing collar). Lay conduits in as straight a line as possible or use elbows with a maximum bend of 30°.

4.3 Filling material

Suitable filling material is required for both the tank bedding ① on the excavated pit and the tank surround ②. The filling material must be possible to tightly compact and must be water permeable. It must form a solid packing and must not damage the surface of the tank.

Round grain gravel grain size of 8/16 mm (alternatively: 12/16 mm or 8/12 mm):

It is very important to avoid hollow spaces in areas that are difficult to reach (recesses, tank underside). Sluicing is not permitted.

Other filling materials can be used in individual cases. You can contact us for advice or read the technical data sheet DORW0100 (applicable filling materials for all Premier Tech/REWATEC tanks) for more information. Accessible via the **QR-Code in the bottom right corner**.

Installation concept: installation of traversable NEO using the NEO 5000 with VS60 as an example



1) bedding 200 mm (round grain gravel, 8/16 mm)

(2) coating compacted in 300 mm layers (round grain gravel 8/16 mm)

- (3) contiguous soil
- (4) barrier layer, cohesive soil
- (5) fleece
- 6 excavated soil





4.4 Installation

DORW0100 filling materials

- 1. Carefully insert the tank into the excavated pit (for example, suspended by straps).
- 2. Align the tank horizontally while observing the work area width.
- Fill the tank with water up to a level of 200 mm.
 - For retention
 cisterns, temporarily
 deactivate the outlet.



for example, by fixing the outlet throttle valve in a raised position.

- Filling is omitted when using the infiltration ditch.
- Fill the space between the outer side of the tank and the excavation pit wall with filling material (round-grain gravel, 8/16 mm) in layers



of 300 mm and manually push in the filling material to ensure that even hollow areas that are difficult to access are filled and compacted (using a hand tamper, for instance).

- 5. Then, fill the tank recesses with filling material (round-grain gravel, 8/16 mm) with particular care. Manually push in the filling material to ensure that even hollow areas that are difficult to access are filled and compacted.
- Connect the lines (inlet, overflow where applicable, supply pipe).
 The fill level remains at 200 mm.







 Continue to cover the tank with filling material (roundgrain gravel, 8/16 mm) until it is 100 mm above the tank shoulder. Compress the filling material again.



 To avoid damage while it settles, a separating layer made from suitable fleece should be placed on the filling material. This





bedding 200 mm (round grain gravel, 8/16 mm)
 coating compacted in 300 mm layers (round grain gravel 8/16 mm)
 contiguous soil
 barrier layer, cohesive soil
 fleece
 excavated soil

prevents fine material from entering the gravel packing.

10. To prevent the built up of percolation water, the water-permeability of the soil above the tank should be kept as low as possible. For this purpose, create a 200 to 300 mm layer consisting of your cohesive, in-situ soil (excavated soil, with no stones) over the entire excavated pit. The layer must be compactly filled to achieve the desired sealing effect. Alternatively, you can also use a watertight plastic film (e.g., construction film). The film is spread out over the entire excavated pit above the fleece and bonded so that it is watertight.

If necessary, use the excavated soil or other material that is sufficiently stable to fill the remaining area outside of the tank surround.





The filling material and the tank including the shaft structure must be fully sealed off against penetrating seepage water by a barrier layer. In the case of cohesive soils, the "barrier layer" with excavated soil/plastic sheet (e.g., pond liner) is crucial.

4.5 Connecting multiple tanks

If you want to connect multiple tanks to each other, connecting pieces can be welded onto the tank at the factory.

These connecting pieces can be used to connect the tanks with suitable piping. Suitable collars for the junctions between the connecting pieces and piping are available. (For DN 110 item no.: RWZT0036)

Details are available upon consultation. For suitability for passenger car traffic, special requirements apply. They must be checked specifically.

The minimum distance between the tanks is 600 mm.





4.6 Opening and closing the TopCover

Tool: Size 13 spanner



When the tank is open, **ensure that it is adequately secured** to prevent people from falling into the shaft. **Always close the tank securely** after completing the work by turning the locking latch on the TopCover to the **locked** position, for example, to act as a child safety function.

Opening the cover:

Turn both nuts that are visible on the cover by 90° in a clockwise direction to unlock the cover. Lift off the cover to perform visual inspections or other service work.

Closing the cover:

Position the cover so that the retaining pin on the lower side of the cover can be inserted into the corresponding shaft hole.



The visible locking latch nuts should be across from the shaft grip recesses.

Turn the two nuts 90° in a counterclockwise direction until they stop in order to seal the cover tight.

Test whether the cover is tightly sealed.



5 AREAS DRIVEN ON BY CAR AND TRUCK

NEO tanks can be constructed to be driven on by car and truck by using the appropriate accessories. Responsibility for the overall static concept lies with the client/contractor and is heavily dependent on the condition and thickness of the roadway, base layer and the type of use. The following examples are intended for guidance but must be verified through a stability analysis adapted to local conditions.

5.1 Diagram for areas driven on by cars

Diagram for areas driven on by car with BS60 shaft and steel cover / traversable up to a max. axle load of 2.2 t / earth covering $E \ge 600$ mm (max. 1500 mm)



- ① Bedding, 200 mm (round-grain gravel, 8/16 mm)
- 2 Surround compacted in 300 mm layers (round-grain gravel, 8/16 mm)
- ③ In-situ WATER-PERMEABLE base (k_f value > 5x 10E-6 m/s)
- (4) Gravel base course, load-distributing
- (5) Driving surface
- L Tank length
- E Earth covering over tank shoulder



5.2 Diagram for areas driven on by truck

Diagram for areas driven on by truck / class D frame and cover on site, traversable up to a max. axle load of 11.5 t (SLW 30) / earth covering $E \ge 800$ mm (max. 1500 mm)



- 1 Bedding, 200 mm (round-grain gravel, 8/16 mm)
- ② Surround compacted in 300 mm layers (round-grain gravel, 8/16 mm)
- ③ In-situ WATER-PERMEABLE base (k_f value > 5x 10E-6 m/s)
- (4) Gravel base course, load-distributing
- (5) Driving surface
- 6 Concrete ring
- (7) Shaft cover
- L Tank length
- E Earth covering over tank shoulder



Note that additional installation measures must be taken for roads driven on frequently and driving surfaces that are subject to heavy loads. Consult our service team for more information.

6 CLEANING AND MAINTENANCE

The underground tank usually does not have to be cleaned more regularly than every ten years unless an excessive amount of sediment that makes cleaning necessary is identified in the tank during annual maintenance/inspection (DIN 1989-1).

Maintenance is performed in two steps and should always be performed by two people:

- Step 1: drain the tank
 - Pump the water down to a level of 300 mm using the internal tank pump or an external pump
 - Drain water containing sediment using a wastewater pump
 - Flush through the inlet lines
- Step 2: desludge the tank
 - Remove sludge with a wet vacuum cleaner or by hand with a bucket and shovel
 - Further cleaning is not required and may affect water quality

7 DISPOSING OF THE PLANT

In case the plant must be disposed of after the end of use, conditions and regulations must be observed. However, the relevant regulations vary from state to state and should be checked with the local authorities if in doubt.



8 DECLARATION OF CONFORMITY





Konformitätserklärung

	No. DOKK8404 160321	
Kenncode	NEO / NEOplus Flachtank Standard	
Artikel-Nr.	RWNExxxx / SGNExxxx (ohne Buchstat	be H in der Artikel-Nr.)
Verwendungszweck	PE-Behälter zur unterirdischen Speiche von häuslichem Abwasser bzw. Regenv	erung / Behandlung wasser
Hersteller	Premier Tech Water and Environment C Am Gammgraben 2, D-19258 Boizenbu	SmbH Irg, Germany
Bevollmächtigter	Marco Rumberg (Geschäftsführer) rum	m@premiertech.com
Angewandte harmonisierte Normen	EN 12566-3 2005+A2:2013 C.6 (Standsicherheit) A.2 (Wasserdichtheit)	Erstes Jahr der Erklärung: 2018
Notifizierte Prüfstelle	PIA GmbH (NB 1739) hat Erstprüfungen	n durchgeführt und den Prüfbericht erstellt:

PIA2017-ST-PIT-1702-1014.01 für Standsicherheit

Standfestigkeit (Grubenprüfung)	PIA2017-ST-PIT-1702-1014.01: bestanden (WET Bedingungen)			
Modell NEO	Größe	max. Eintauchtiefe ins Grundwasser gemäß Einbauvorschrift: bis Tankäquator		
NEO 800	0,8m³	WET=0,35m		
NEO 1500	1,5m3	WET=0,40m		
NEO 3000	3,0m3	WET=0,52m		
NEO 5000	5,0m ³	WET=0,56m		
NEO 7100	7,1m³	WET=0,64m		
NEO 8000	8,0m ³	WET=0,63m		
NEO 10000	10m ³	WET=0,63m		
NEOplus 15000-50000	15-50m ³	WET=0,63m		
Wasserdichtheit (Prüfung mit Wasser)	bestanden			
Dauerhaftigkeit	bestanden			
Brandverhalten	E			
Freisetzung gefährlicher Stoffe	NPD			

Verantwortlich für die Erstellung dieser Erklärung ist allein der Hersteller gemäß Nummer 4.

Diese Erklärung bescheinigt die Übereinstimmung mit den genannten Verordnungen, Richtlinien und Normen, beeinhaltet jedoch keine Zusicherung von Eigenschaften. Die Sicherheitshinweise und mitgelieferten Anleitungen zum Einbau, Betrieb und zur Wartung sind zu beachten.

Unterzeichnet für den Hersteller und im Namen des Herstellers von:

1. Muni

Boizenburg, März 2021

Es handelt sich um ein nicht harmonisiertes Bauprodukt und damit bei diesem Dokument um eine freiwillige Herstellererklärung. Mangels anderer zutreffender Normen wird Bezug zu einem vergleichbaren Bauprodukt (Kleinkläranlagen mit EN 12566) genommen. Bei der Grubenprüfung nach EN 12566 wird die Verformung durch Messung des Volumenverlusts eines leeren Behälters nach 21 Tagen im eingebauten Zustand praktisch ermittelt.

Laut EN 12566 kann die Grubenprüfung ohne Grundwassereinfluss (DRY) oder mit Grundwassereinfluss (WET) durchgeführt werden.

DOKK8404 160321 NEO Standard Konformitätserklärung



Notes



Disclaimer

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