UNGROUND R

OWNERS MANUAL

Unground R-1000

Unground R-2000

Unground R-3000

Unground R-5000

Unground R-7000

Unground R-Drain
Unground Extension

The WATERFORM UNGROUND R tank is designed exclusively for the storage and distribution of the rainwater stored underground.

The WATERFORM UNGROUND R line is the optimal solution for every household's needs.

waterform
RAINDROP FOR BETTER TOMORROW

SK ES FR PL EN DE CZ HU ENGLISH

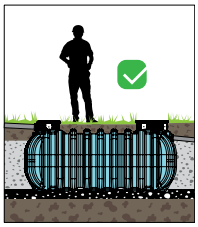
In the fight against the global effects of weather anomalies – prolonged periods of drought, sudden and intense rainfall – rainwater storage supports the efforts to improve/optimise the management of water and wastewater. This is a breakthrough in building environmental awareness and an important contribution to environmental protection. As a result – an excellent alternative to domestic water supply and, undoubtedly, tangible economic benefits, such as a significant reduction in water bills. The use of the UNGROUND LINE system during heavy and prolonged rainfall reduces the risk of local flooding, and the valuable water stored in this way can be used during the dry season for watering plants or as process water.

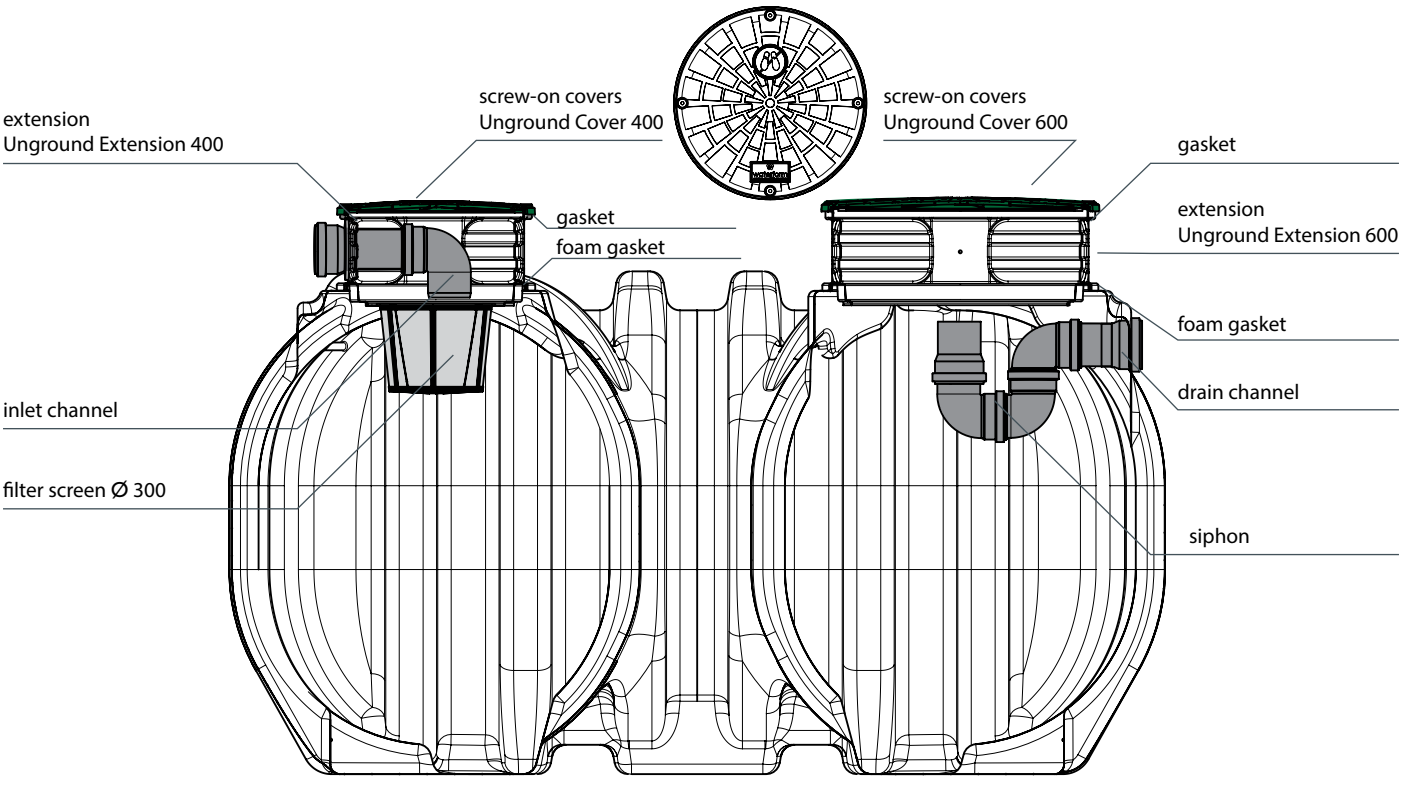
IMPORTANT
Planning the tank location is crucial for correct installation, safe use and servicing.
Ensure that the chosen place meets safety requirements.

The choice of the right tank is determined by location factors, such as region and country, but also the surface area of the building roof and the plot of land (where water is to be used for watering, washing the car, in the toilet).

UNGROUND R DESIGN

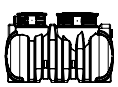
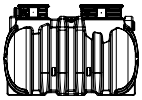
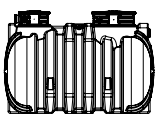
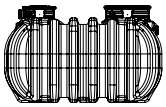
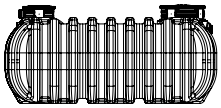
The entire tank structure is reinforced with solid vertical ribs, and the rounded heads are further reinforced with horizontal ribs. The sidewalls of the 1000, 2000, 3000 series tanks are equipped with two transport handles, while the others have cutouts for forklift forks in the bottom part. At the top of the tank are two round inspection manways with extension elements and covers. Mounting the cover to the tank with 4 mounting screws prevents direct access. In the smaller manhole extension with a diameter of 400 mm, a PVC inlet pipe with a diameter of 110 mm is fixed, seated with a gasket. There is also a 290 mm diameter opening under the extension with a filter screen. The larger of the manholes has a diameter of 600 mm. In the outlet part of the tank there is a flat section on which the drain is mounted. It consists of a PVC pipe with a diameter of 110 mm with a siphon, consisting of 3 PVC 110 mm elbows and a pipe with a gasket.





CROSS-SECTION FOR UNGROUND R-5000

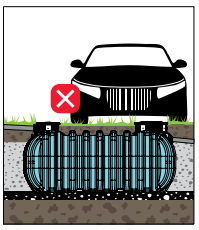
MODEL SIZES

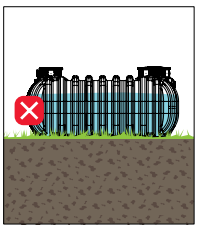
				
Unground R-1000 **1850 x 900 x 1190 mm**	**Unground R-2000** **2200 x 1200 x 1490 mm**	**Unground R3000** **2400 x 1370 x 1640 mm**	**Unground R-5000** **2400 x 2400 x 1480 mm**	**Unground R-7000** **3280 x 2400 x 1520 mm**

EN

NOTE!

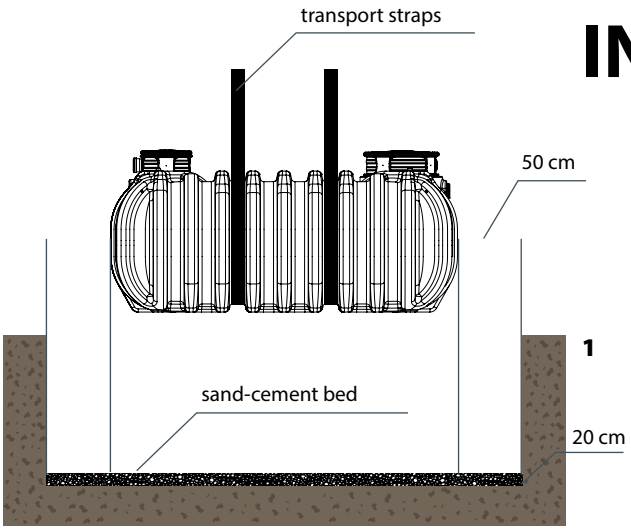
Tank for watering purposes or for process water. The tank should be installed only in areas intended for pedestrian traffic, excluding car traffic and parking areas.
Manholes secured with screws. During the gradual burying of the tank under the ground, fill it with water. Failure to follow the rules of correct installation may result in damage to the product.
An appropriately sized excavation must be made for the selected tank model according to the following guidelines. The installation location of the tank should be as close as possible to the rainwater intake (such as a rain gutter), but not closer than 3 metres. The pipe directing rainwater from the building to the tank should be laid with a downward gradient. The tank should be levelled and partially buried for stability – in subsequent steps of installation, it should be gradually flooded with water, always to a level higher than each successive layer of backfill (sand – cement mix).

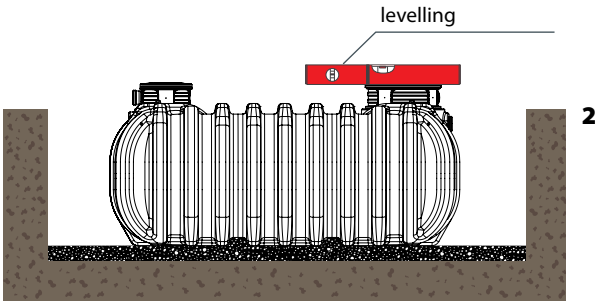




WARNINGS:

Do not fill the tank when on the surface.
It is forbidden to completely flood the tank before burying it! It is forbidden to enter the tank! Tank installation depends on the type of soil.
Before installing the tank, check the tank for manufacturing defects or damage caused during transport! If defects are noticed, contact the seller. Once the tank is buried, guarantee claims for damage will not be accepted!
It is forbidden to leave the covers unsecured!





INSTALLATION MANUAL

BASED ON THE EXAMPLE OF UNGROUND R-7000

TANK FOUNDATION

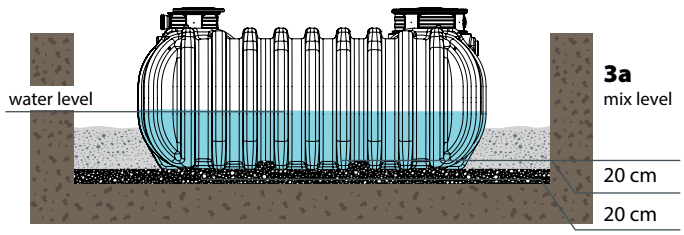
The minimum required by the manufacturer design distance of the edge of the excavation from: the boundary of the plot 3 m, roadway 3 m, car park 3 m, building footprint 3 m, gas and water pipes 1.5 m, electrical cables 0.8 m, telecommunications cables 0.5 m.

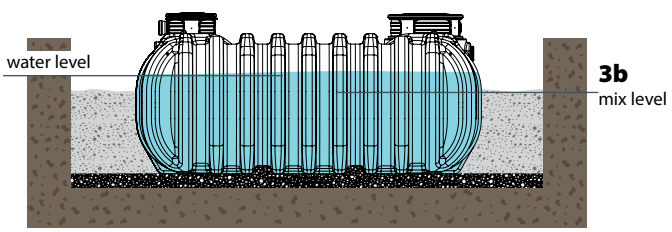
Determine the location of the tank according to the given recommendations. Planning the tank location is crucial for correct installation, safe use and servicing. Ensure that the chosen place meets safety requirements. Before installation, install all the accessories provided by the installation manual on the tank.

1. Provide an excavation larger than the dimensions of the tank, by 50 cm on each side. Increase the design depth of the excavation by 20 cm. This is the height of the sand – cement bed layer on which the tank will be placed. Level the bottom of the excavation, remove sharp stones, objects that could damage the tank during installation. Spread the sand cement mix layer on the bottom of the excavation. Prepare the mix at a ratio of 150 kg of cement per 1 m^3 of sand.

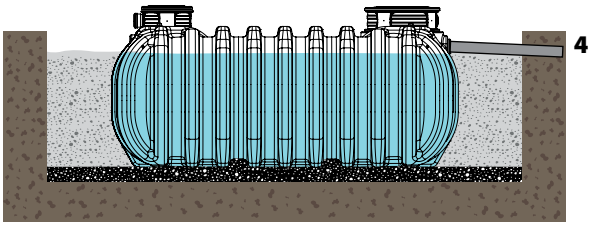
2. Place the tank on the levelled sand-cement bed layer. Ensure that mounting manholes are secured with covers or extensions. Level the tank in the inlet – outlet line.

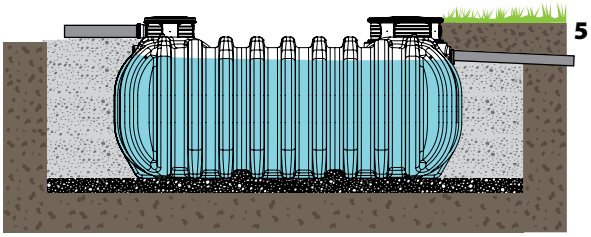
3. a / b. Bury the tank with sand-cement mix, in the proportions as previously described, i.e. 150 kg of cement per 1 m^3 of sand. Compact the backfill for each 20 cm layer of the mix. Correct compaction of the layers will facilitate installation and reinforce the tank structure after burying. Compact the layers by hand, do not use mechanical compactors. Fill the tank with water evenly when burying it. The water level in the tank should be higher than the level of the sand-cement mix by approx. 10 cm. It is forbidden to completely flood the tank before installation.





ENGLISH





4. When the level of tank drain outlet is reached, place a PVC pipe in the drainage channel to connect the tank to the emergency overflow system, and place a PVC pipe in the inlet channel to connect the tank to the source of water supply, such as a gutter. Then continue backfilling the excavation. When installing a system for supplying and draining excess water, provide a sand bed ~ 10 – 15 cm. After installing the tank, keep the tank full at all times for approx. seven days.

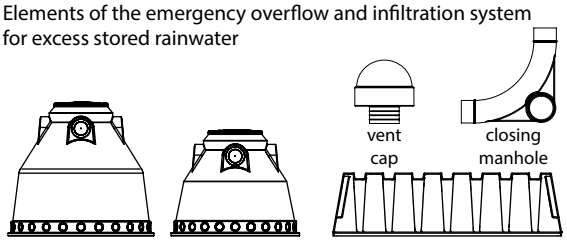
5. The top layer above the tank can be made with native soil. Once the installation is complete, check that the covers are screwed to the tank. The maximum depth for burying the tank is 40 cm – counting from the top edge of the tank, that is approx. the height of two extensions. If the tank is installed at a greater depth, a concrete relief slab should be provided above the tank.

INSTALLATION IN DIFFICULT TERRAIN

If the tank is installed in difficult terrain or in an area where groundwater may be present, the type of backfilling material should be changed. The sand-cement backfill should be replaced by a backfill made of washed gravel with the grain size of 16 – 32 mm. The accumulated ground water should be pumped to an infiltration system at the minimum distance of 5.0 m from the tank.

INSTALLATION OF EMERGENCY OVERFLOW AND INFILTRATION SYSTEM COMPONENTS

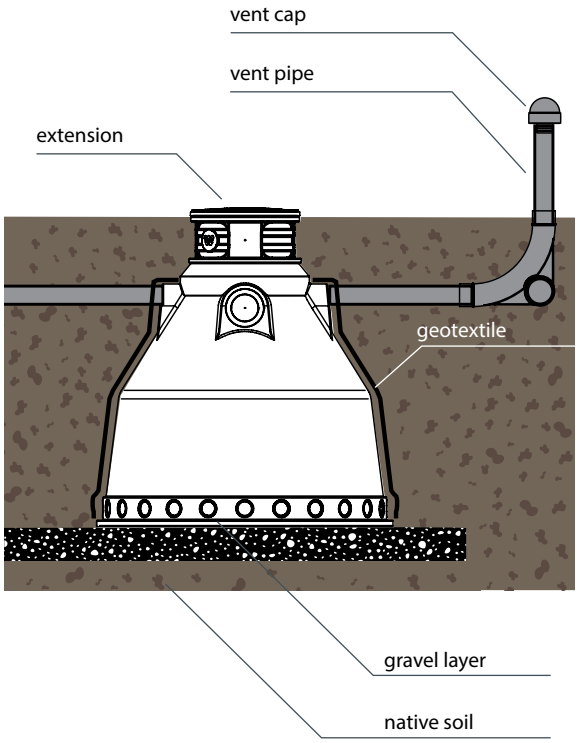
Elements of the emergency overflow and infiltration system for excess stored rainwater



SOAKAWAYS AND INFILTRATION TUNNEL

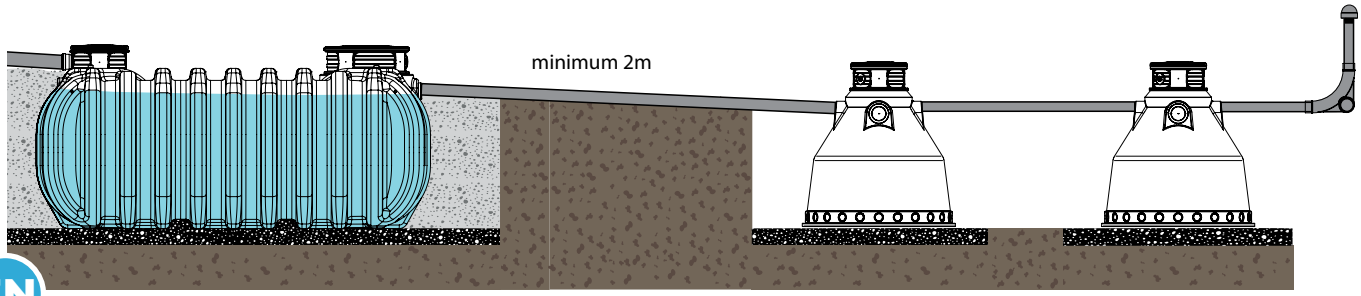
In order to vent the system, the infiltration system should be closed with a soakaway or infiltration tunnel and a vent cap. Install the rainwater supply and drain pipes on a sand bed. Excess water supplied from the gutter to the tank is then discharged into a system of infiltration drainage equipment available in our offer – Unground R-Drain 500, Unground R-Drain 1000 or Unground R-Drain 150, closing manhole, vent cap.

All dedicated accessories are available from Prosperplast Waterform.

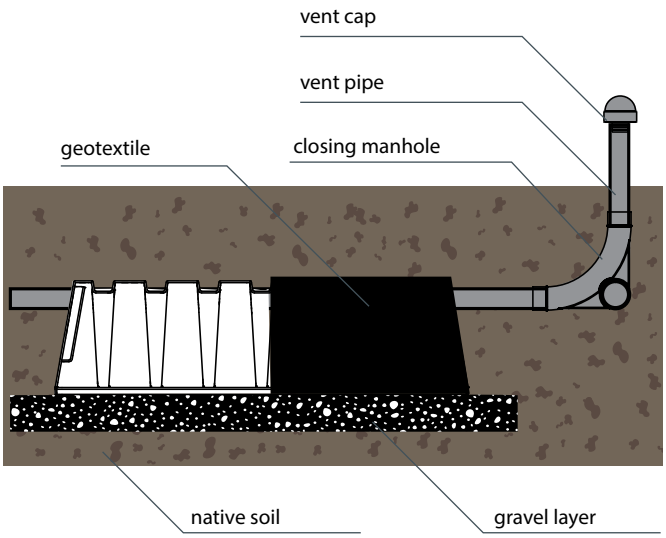


INSTALLATION OF THE SOAKAWAY Unground R-Drain 500/1000

1. Provide an excavation 50 cm larger in diameter than the diameter of the soakaway and level the bottom of the excavation.
2. At the bottom of the excavation, spread and level a layer of gravel (~ 10 cm for permeable soils and a minimum of 50 cm for poorly permeable soils).
3. Place the soakaway on the gravel layer.
4. Depending on your needs, make holes for the water supply pipe and soakaway connection pipes if more soakaways are used (acceptable diameters Ø 110 mm or Ø 160 mm), as well as a hole for the connection of the closing manhole (Ø 110 mm).
5. Cover the soakaway with geotextiles (so that the geotextile strips overlap at least 10 cm).
6. Prepare (cut) mounting holes in the geotextile for the water supply pipe and soakaway connection pipes (only if the system will consist of more than one soakaway), following the holes already made in the soakaways.
7. Connect the closing manhole to the last soakaway in the entire system.
8. Place the vent pipe with a diameter of 110 mm on the closing manhole. The vent pipe should be brought above ground level, at least 25 cm.
9. Close the vent pipe with a vent cap.
10. Place an extension on at least one of the last wells in the system to act as an inspection opening.
11. Connect the pipe leading out of Unground R to the first soakaway.
12. Gradually backfill the excavation, compacting the soil every 30 cm.
13. When installing a system for supplying and draining excess water, provide a sand bed.



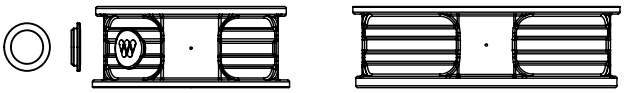
EN



INSTALLATION OF THE INFILTRATION TUNNEL Unground R-Drain 150

1. Provide an excavation with a length corresponding to the designed drainage line.
2. After levelling the bottom of the excavation, spread and level a layer of gravel (approx. 10 cm for permeable soils and a minimum of 50 cm for poorly permeable soils).
3. Place the tunnels on the gravel layer and connect them together using drainage pipes.
4. Cover the tunnels with geotextile in such a way that the geotextile strips overlap at least 10 cm.
5. Cut mounting holes in the geotextile for the water supply pipe.
6. Connect a pipe with a closing tunnel to a sequence of infiltration tunnels.
7. Place a vent pipe (approx. 1 m) with a diameter of 110 mm on the closing tunnel. The vent pipe should be brought above ground level, at least 25 cm.
8. Close the vent pipe with a vent cap.
9. Backfill the excavation with a layer of native soil, approx. 30 cm.

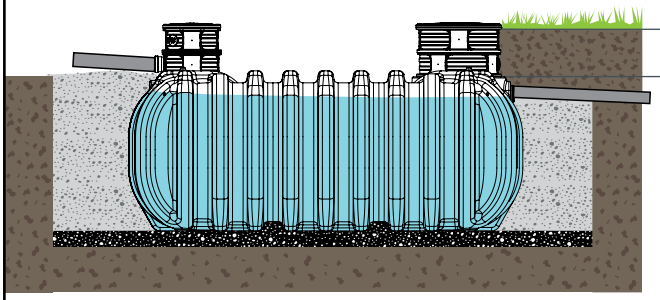
INSTALLATION OF UNGROUND EXTENSION ELEMENTS



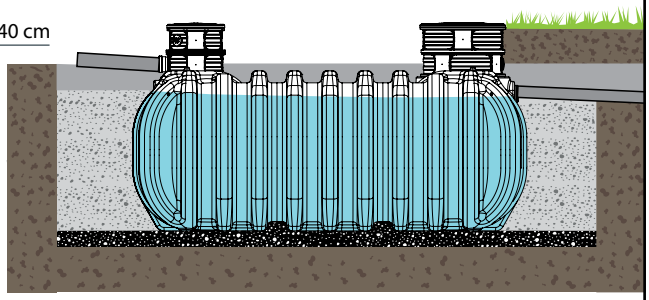
Unground Extension 400

Unground Extension 600

In order to maintain the downward gradient of pipes connected to rain gutters or to compensate for differences in ground levels, we can use an additional Unground Extension 400 or Unground Extension 600 to install the tank. The flange of the Unground Extension 400 has an end cap with a gasket for making a sealed passage for the electrical cable and hose of the submersible pump. The extensions are mounted to the tank or another extension with mounting screws. **All additional components of the system are available from Prosperplast Waterform.**

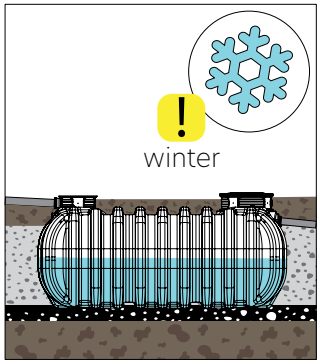


installation of UNGROUND EXTENSION with native soil



installation of UNGROUND EXTENSION in difficult conditions, with native soil and stress relieving layer

MAINTENANCE OF UNGROUND R



The longevity of the installation, the long, trouble – free and optimal operation of the system, as well as the quality of the retained rainwater, are determined by carrying out regular, ongoing and seasonal maintenance, which is not a difficult task.

! To prevent difficulties in the operation of the system:
1. Keep the roof and gutters clean – eliminating solid materials like branches, leaves, moss.
2. Regularly clean the filter basket used to catch fine debris flowing with water from the roof.
3. Check the condition and regularly clean the emergency overflow.

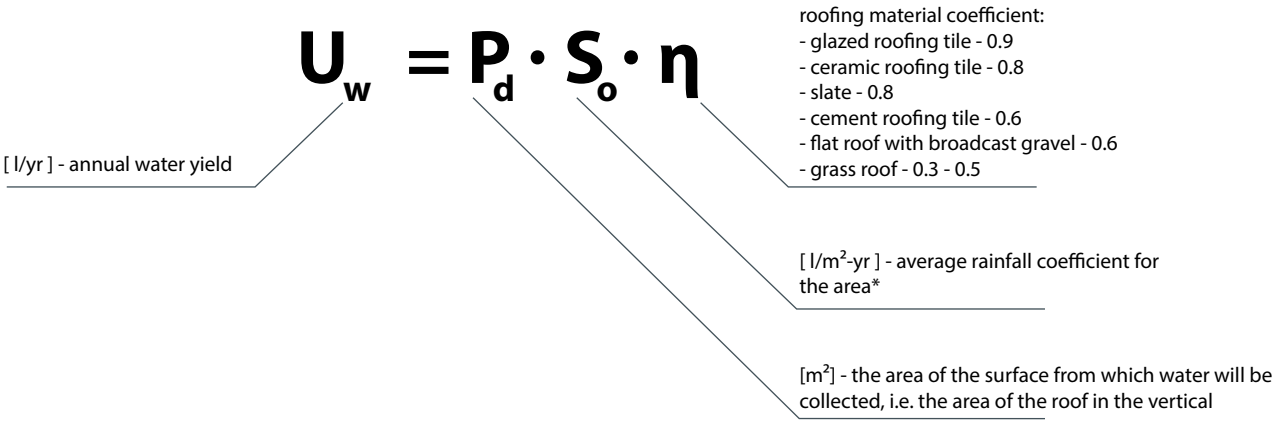
! **Preventing rainwater from freezing in the tank. It is recommended to preemptively lower the water level to half of the tank for the winter period.**

ENGLISH

UNGROUND R SIZE SELECTION INSTRUCTIONS

WATER YIELD CALCULATIONS

For the correct implementation of the water collection and infiltration system, first of all, it is necessary to make a calculation of the water yield for the roof surface from which water will be collected. The water yield from the designed roof area, should be calculated as follows:



This result, known as the annual rainwater yield U_w, helps to determine the annual volume of rainwater falling on the roof surface. The tank size must be selected in such a way that it will store water for what is known as „reserve" during rainy season. Therefore, the U_w water yield value should be multiplied by the estimated time of any drought. Drought time should be taken as 21 days (for Poland).

The final capacity of the designed tank can be calculated from the following formula:

$$V_z = U_w \cdot 21/365[l]$$

After determining the final capacity of the tank, the appropriate tank should be selected from the range.

When choosing a tank, be careful to not oversize!

When designing a collection system, it is necessary to design an emergency overflow system! To protect the tank from overflowing, excess water should be discharged into the ground using soakaways or infiltration tunnels.

* indicate the sum of average annual rainfall in the area where the tank will be installed

---

„The manufacturer shall declare activities related to the assessment and verification of constancy of performance of the construction product at the level of conformity system 4 (national system 4) in accordance with the Regulation of the Minister of Infrastructure and Construction of November 17, 2016 on the manner of declaring the performance of construction products and the manner of marking them with the construction mark."

Rainwater tanks – construction product

According to this definition and Article 2(1) of the Law on Construction Products, a " " or kit which is produced and placed on the market for incorporation in a permanent manner in civil structures or parts thereof and the performance of which has an effect on the performance of the civil structures with respect to the basic requirements for civil structures REGULATION OF THE MINISTER OF INFRASTRUCTURE AND CONSTRUCTION of 17 November 2016 on the method of declaring the performance of construction products and the method of marking them with a construction mark.

EN

INSTYTUT TECHNOLOGICZNO-PRZYRODNICZY
PAŃSTWOWY INSTYTUT BADAWCZY

Członek Rady Technicznej ds. Krajowych Ocen Technicznych

KRAJOWA OCENA TECHNICZNA

ITP-PIB-KOT-2022/0054 wydanie 1

Podstawą prawną wydania Krajowej Oceny Technicznej jest Rozporządzenie Ministra Infrastruktury i Budownictwa z dnia 17 listopada 2016 r. *w sprawie krajowych ocen technicznych* (Dz. U. z 2016 r. poz. 1968).

Decyzją nr 1/KJOT/WB/19 Ministra Infrastruktury i Budownictwa z dnia 14 sierpnia 2019 r. Instytut Technologiczno-Przyrodniczy-Państwowy Instytut Badawczy w Falentach jako krajowa jednostka oceny technicznej upoważniona jest do wydawania krajowych ocen technicznych.

Wyrób budowlany zgłoszony został przez:

Prosperplast®
plastic products

Prosperplast 1 Sp. z o.o.
ul. Wilkowska 968
43-378 Rybarzowice
Polska

Krajowa Ocena Techniczna ITP-PIB-KOT-2022/0054 wydanie 1 stanowi pozytywną ocenę właściwości użytkowych wyrobu budowlanego należącego do grupy wyrobów ujętych w Poz. 28 w załączniku nr 1 do Rozporządzenia Ministra Infrastruktury i Budownictwa z dnia 17 listopada 2016 r. (Dz. U. z 2016 r. poz. 1966, z późn. zm.):

Podziemne, bezciśnieniowe zbiorniki WATERFORM UNGROUND przeznaczone do magazynowania i retencji wody deszczowej wraz z elementami systemu rozsączania

Data ważności KOT

1 września 2027 r.

INSTYTUT TECHNOLOGICZNO-PRZYRODNICZY PAŃSTWOWY INSTYTUT BADAWCZY

Kierownik Jednostki Oceniającej

Zastępca Dyrektora ds. Naukowych
Prof. dr hab. inż. Wiesław Dembek

Falenty, 2 września 2022 r.

Falenty, Al. Hrabska 3, 05-090 Raszyn
tel.: +48 22 628 37 63 e-mail: itp@itp.edu.pl www.itp.edu.pl
NIP: 534 2437 004 REGON: 14217334

KRAJOWA DEKLARACJA WŁAŚCIWOŚCI UŻYTKOWYCH
nr WB-SR/2022/01

1. Nazwa i nazwa handlowa wyrobu budowlanego:
Studnia chłonna WATERFORM UNGROUND R-DRAIN500,
Studnia chłonna WATERFORM UNGROUND R-DRAIN1000,
Tunel rozsączający WATERFORM UNGROUND R-DRAIN150
2. Oznaczenie typu wyrobu budowlanego: UNGROUND R-DRAIN500, UNGROUND R-DRAIN1000, UNGROUND R-DRAIN150
3. Zamierzone zastosowanie lub zastosowania:
- rozsączanie wód deszczowych.
4. Nazwa i adres siedziby producenta oraz miejsce produkcji wyrobu:
Prosperplast 1 Sp. Z o.o.
ul. Wilkowska 968
43-378 Rybarzowice
5. Nazwa i adres siedziby upoważnionego przedstawiciela, o ile został ustanowiony: nie dotyczy.
6. Krajowy system zastosowany do oceny i weryfikacji stałości właściwości użytkowych:
System oceny zgodności 4.
7. Krajowa specyfikacja techniczna: Krajowa Ocena Techniczna ITP-PIB-KOT-2022/0054 wydanie 1
Instytut Technologiczno-Przyrodniczy
8. Deklarowane właściwości użytkowe:

Zasadnicze charakterystyki wyrobu budowlanego dla zamierzonego zastosowania lub zastosowań		Deklarowane właściwości użytkowe			Uwagi
		UNGROUND R-DRAIN150	UNGROUND R-DRAIN500	UNGROUND R-DRAIN1000	
Wymiary:	Długość podstawy	1200 mm	1200 mm	1400 mm	ITP-PIB-KOT-2022/0054 wydanie 1
	Szerokość podstawy	760 mm	1200 mm	1400 mm	ITP-PIB-KOT-2022/0054 wydanie 1
	Wysokość	330 mm	950 mm	1250 mm	ITP-PIB-KOT-2022/0054 wydanie 1
Wygląd zewnętrzny		Bez zadziorów i ostrych krawędzi			ITP-PIB-KOT-2022/0054 wydanie 1
Barwa		Czarna, jednolita			ITP-PIB-KOT-2022/0054 wydanie 1
Odporność na uderzenia		Brak uszkodzeń			PN-EN 13598-2:2009
Wytrzymałość konstrukcji		17,90 kN/m^2	41,67 kN/m^2	27,16 N/m^2	

9. Właściwości użytkowe określonego powyżej wyrobu są zgodne z wszystkimi wymienionymi w pkt 8 deklarowanymi właściwościami użytkowymi. Niniejsza krajowa deklaracja właściwości użytkowych wydana zostaje zgodnie z ustawą z dnia 16 kwietnia 2004 r. o wyrobach budowlanych, na wyłączną odpowiedzialność producenta.
W imieniu producenta podpisał:

Marcin Śliwa
.....
(imię i nazwisko oraz stanowisko)

Kierownik Działu Jakości

Rybarzowice, 02.09.2022
.....
(miejsce i data wydania)

Marcin Śliwa

.....
(podpis)

KRAJOWA DEKLARACJA WŁAŚCIWOŚCI UŻYTKOWYCH
nr WB-SG/2022/01

1. Nazwa i nazwa handlowa wyrobu budowlanego: podziemny bezciśnieniowy zbiornik WATERFORM UNGROUND
2. Oznaczenie typu wyrobu budowlanego:
WATERFORM UNGROUND R-1000 / R-2000 / R-3000 / R-5000 / R-7000
3. Zamierzone zastosowanie lub zastosowania:
- magazynowanie lub retencja wody opadowej.
4. Nazwa i adres siedziby producenta oraz miejsce produkcji wyrobu:
Prosperplast 1 Sp. Z o.o.
ul. Wilkowska 968
43-378 Rybarzowice
5. Nazwa i adres siedziby upoważnionego przedstawiciela, o ile został ustanowiony: nie dotyczy.
6. Krajowy system zastosowany do oceny i weryfikacji stałości właściwości użytkowych:
System oceny zgodności 4.
7. Krajowa specyfikacja techniczna: Krajowa Ocena Techniczna ITP-PIB-KOT-2022/0054 wydanie 1
Instytut Technologiczno-Przyrodniczy
8. Deklarowane właściwości użytkowe:

Zasadnicze charakterystyki wyrobu budowlanego dla zamierzonego zastosowania lub zastosowań	Deklarowane właściwości użytkowe	Uwagi
Wymiary	Zgodne z KOT	ITP-PIB-KOT-2022/0054 wydanie 1
Wygląd zewnętrzny	Ściany gładkie i jednorodne, bez pęcherzy, zapadnięć, wtrąceń obcych ciał, uszkodzeń, zarysowań	ITP-PIB-KOT-2022/0054 wydanie 1
Szczelność	Spełnia	ITP-PIB-KOT-2022/0054 wydanie 1
Barwa	Jednolita	ITP-PIB-KOT-2022/0054 wydanie 1
Pojemność całkowita	1,0 / 2,0 / 3,0 / 5,0 / 7,0 m^3	ITP-PIB-KOT-2022/0054 wydanie 1
Wytrzymałość konstrukcji	20 kN/m^2	

9. Właściwości użytkowe określonego powyżej wyrobu są zgodne z wszystkimi wymienionymi w pkt 8 deklarowanymi właściwościami użytkowymi. Niniejsza krajowa deklaracja właściwości użytkowych wydana zostaje zgodnie z ustawą z dnia 16 kwietnia 2004 r. o wyrobach budowlanych, na wyłączną odpowiedzialność producenta.
W imieniu producenta podpisał:

Marcin Śliwa
(imię i nazwisko oraz stanowisko)

Kierownik Działu Jakości

Rybarzowice, 02.09.2022
(miejsce i data wydania)

Marcin Śliwa

(podpis)

LOGBOOK FOR UNDERGROUND WATER TANK INSTALLATION

INVESTOR ..... ADDRESS ....

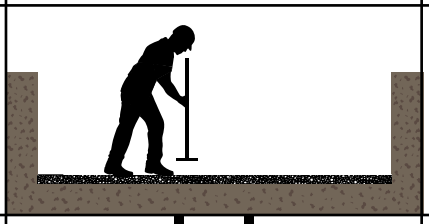
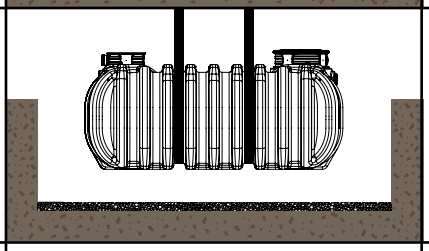
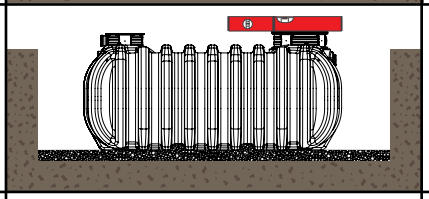
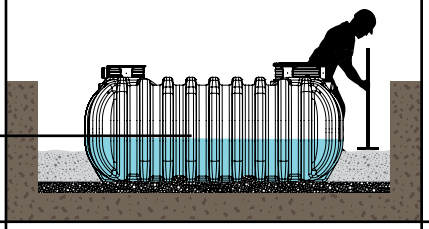
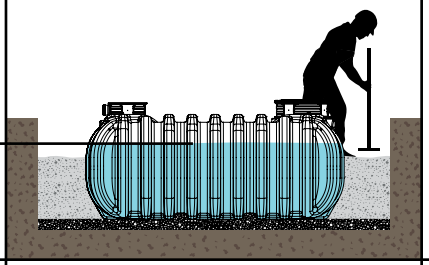
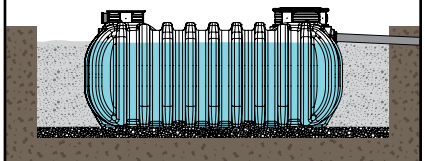
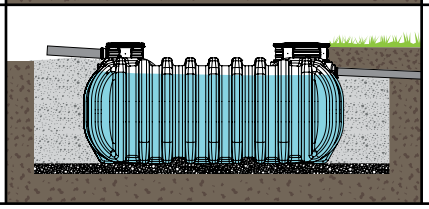
FACILITY .....

Roof surface area expected for water collection * ..... m^2 / Roofing type .....

SOIL TYPE ☐ well permeable ☐ moderately permeable ☐ poorly permeable

DOCUMENTING THE STAGES OF CONSTRUCTION IS A CONDITION FOR GUARANTEE**

FOLLOW INSTALLATION INSTRUCTIONS STEP-BY-STEP

	INSTALLATION EXAMPLE - STAGES	DATE	NUMBER OF PHOTOGRAPHS TAKEN	INSTALLATION CONTRACTOR SIGNATURE
1				
2				
3				
4				
5				
6				
7				

TYPE OF DRAINAGE SYSTEM ELEMENTS USED		
	Unground R-Drain 1000	NUMBER OF PCS. USED .....
	Unground R-Drain 500	NUMBER OF PCS. USED .....
	Unground R-Drain 150	NUMBER OF PCS. USED .....

* should be calculated from the formula provided on page 6, taking into account total average annual rainfall in the area where the tank will be installed

*** * A necessary condition for the validity of the guarantee is providing the required photo documentation of the stages of installation of the tank and connections, as well as the required statement of the Installation Contractor.**

Place/Date

.....

Installation contractor statement:

Installation Contractor,

.....

responsible for the installation and foundation of the rainwater storage tank Unground – R certifies that the tank was installed in accordance with the Manufacturer's installation instructions and the completed installation report with photographic documentation was submitted to the Investor.

.....

Signature / seal

EN

UNGROUND R Guarantee

1. Prosperplast 1 sp. z o.o. of Rybarzowice 43-378, ul. Wilkowska 968, KRS no. 0000605309 (hereinafter referred to as Guarantor) declares that the tank / tanks …… are in accordance with the National Technical Assessment (Krajowa Ocena Techniczna) no. ITP-PIB-KOT-2022/0054 wydanie 1 and are free from manufacturing defects
(defects arising from causes inherent in the sold product).

2. The guarantee period, calculated from the date of manufacture (see nameplate), is:
a. 10 years for tank structure
b. 2 years for accessories and equipment

3. If a defect as described above occurs during the guarantee period, the Guarantor shall repair the product free of charge or replace the defective elements with new ones, at its discretion. In the event of replacement, defective elements will be returned to the Guarantor, unless the Guarantor states otherwise.

4. The defect should be reported by registered mail to the Guarantor's registered address or by e-mail to: reklamacje@prosperplast.pl within 14 days of its discovery under pain of forfeiture of guarantee rights. Along with the guarantee claim, include:

5. Purchase document and the Installation Logbook, according to the template included in the Owners Manual (if a scan or a copy was sent, the Guarantor may require original documents).

6. The guarantee shall not be valid in the following cases:

a. failure to comply with the conditions established by the Guarantor in the Owners Manual for the selection of the type and size of the tank to match local soil and water conditions,
b. failure of the contractor to comply with the installation rules established by the Guarantor in the Owners Manual,
c. failure by the Owner to comply with the rules of operation and maintenance established by the Guarantor in the Owners Manual,
d. making alterations or use of the product (including accompanying elements, especially accessories or equipment) in a manner inconsistent with its intended use, as established by the Guarantor in the Owners Manual,
e. mechanical damage from causes other than those caused by a properly installed tank,
f. force majeure, i.e. extraordinary phenomena, in particular of hydrological, atmospheric, geological nature, independent of human will
g. use of accessories or equipment not originating from the Guarantor or otherwise indicated by the Guarantor as acceptable,

7. In the case the purchaser is a consumer, the guarantee shall not exclude, limit or suspend the entitlements of the purchaser under the warranty.

8. The guarantee covers items purchased and used in the territory of the Republic of Poland/European Union.

9. Due to the nature of the products covered by the guarantee and its duration, the Guarantor is forced to refer to additional documents such as the National Technical Assessment, the Installation Logbook, and the Owners Manual. Should any of the provisions of these documents prove to be unavailable, incomprehensible or unclear to the entitled party, they shall have the right to demand that the Guarantor submit these documents and provide the necessary clear and transparent explanations.

ENGLISH

waterform

RAINDROP FOR BETTER TOMORROW

Prosperplast 1 Sp. z o.o.
43-378 Rybarzowice, ul. Wilkowska 968, Polska
www.prosperplast.pl
Made in Poland

SK ES FR

PL EN DE CZ HU