INSTALLATION, OPERATING AND MAINTENANCE INSTRUTIONS

KESSEL-Rainwater storage tank *Aqabase*®

- for outdoor use
- Standard
- Comfort
- Multicompact
- Retention

Art.Nr.
85430 / 85445 / 85460 / 85490
85430B / 85445B / 85460B / 85490B
85430/80B(D) / 85445/80B(D) / 85460/80B(D) / 85490/80B (D)
85530/80B(D) / 85545/80B(D) / 85560B(D)
85630/80B(D) / 85645/80B(D) / 85660B(D)

picture shows 85490B

Product advantages

- **Easy placement in the excavation possible without a crane being necessary**
- **Numerous pre-scored areas for various connection possibilities**
- **Material is recycling-friendly**
- **Absolutely waterproof thanks to seamless monolithic structure**
- **Nationwide service network**

The installation and service of this unit should be carried out by a licensed professional servicer

Name /Sign | Date | Place | Stamp

Subject to technical amendment

Edition 05/2011

KESSEL

ID number 010-117EN

1. Safety instructions

The personnel for installation, assembly, operation, maintenance and repair must possess the appropriate qualification for this type of work. The area of responsibility, the authority and the supervision of personnel must be exactly regulated by the operator.

The operational security of the plant supplied is only guaranteed when it is used in accordance with the regulations. The limits of the technical specifications may not be exceeded on any account.
During installation, assembly, operation, maintenance and repair of the plant, the regulations for the prevention of accidents and the pertinent standards and directives must be heeded.
These are among others:

- Accident prevention regulations
- Construction work BGV C22
- Technical wastewater systems GUV-V C5
- Safety regulations for working in enclosed spaces of technical wastewater systems GUV-R 126
- Handling biological working materials in technical wastewater systems GUV-R 145
- Directives for working in tanks and narrow spaces BGR 117
- Standards
- Excavations and trenches - slopes, planking and strutting, breadths of working spaces DIN 4124
- Construction and testing of drains and sewers DIN EN 1610
- Tool for safety and health protection in technical wastewater systems.

Warning!

- Hazards through gases and vapours such as risk of suffocation, risk of poisoning and risk of explosion
- Risk of falling
- Risk of drowning
- Germ pollution and wastewater with sewage
- High physical and psychic strain during work in deep, narrow or dark spaces
- and others

Warning!

Non-compliance with the operating instructions may result in considerable damage to property, personal injuries or fatal accidents.

Caution!

The system represents one component in a whole plant. Please therefore also heed the operating instructions for plant as a whole and the individual components. During assembly, maintenance, service and repair work on one of the components, the plant as a whole must always be put out of operation and secured against unintentional restart.
Conversions or changes to the plant may only be carried out in agreement with the manufacturer. For safety reasons, use original spare parts and accessories approved by the manufacturer. The use of other parts may void the liability for any consequences arising thereof.
The cover on the rainwater storage tank must be sufficiently secured against unauthorised opening (in particular by children).
The system does not influence the quality of the service water.
In the case of backwater, wastewater from the sewer can be pushed back into the service water network.
The service water is not suitable for consumption and personal hygiene.
Signs saying “Caution: Not drinking water” must be attached to all tapping points.

Table of contents

Dear customer,
we are pleased that you have decided to buy a KESSEL product.
The entire plant was subjected to a stringent quality control before it left our factory. Nevertheless, please check immediately whether the plant has been delivered to you complete and undamaged. In case of any transport damage, please refer to the instructions in the chapter "Warranty" in this manual.
These installation, operating and maintenance instructions contain important information that has to be observed during installation, assembly, operation, maintenance and repair. Prior to carrying out any work on the plant, the operator and the responsible technical personnel must carefully read and heed these instructions.
Important! The information, values, specifications etc. given in these instructions for installation, operation and maintenance cannot be transferred to other products on account of the tested statics.
KESSEL AG

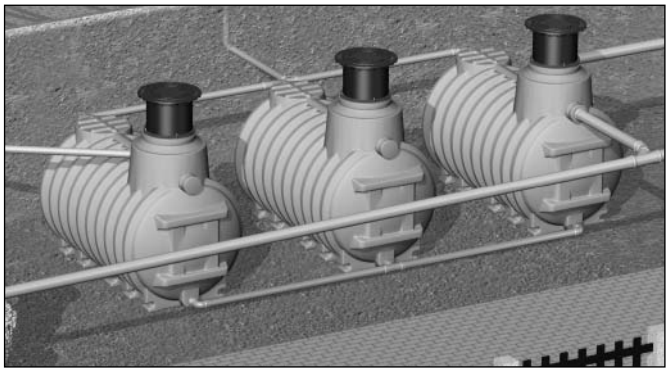
2. Application Area

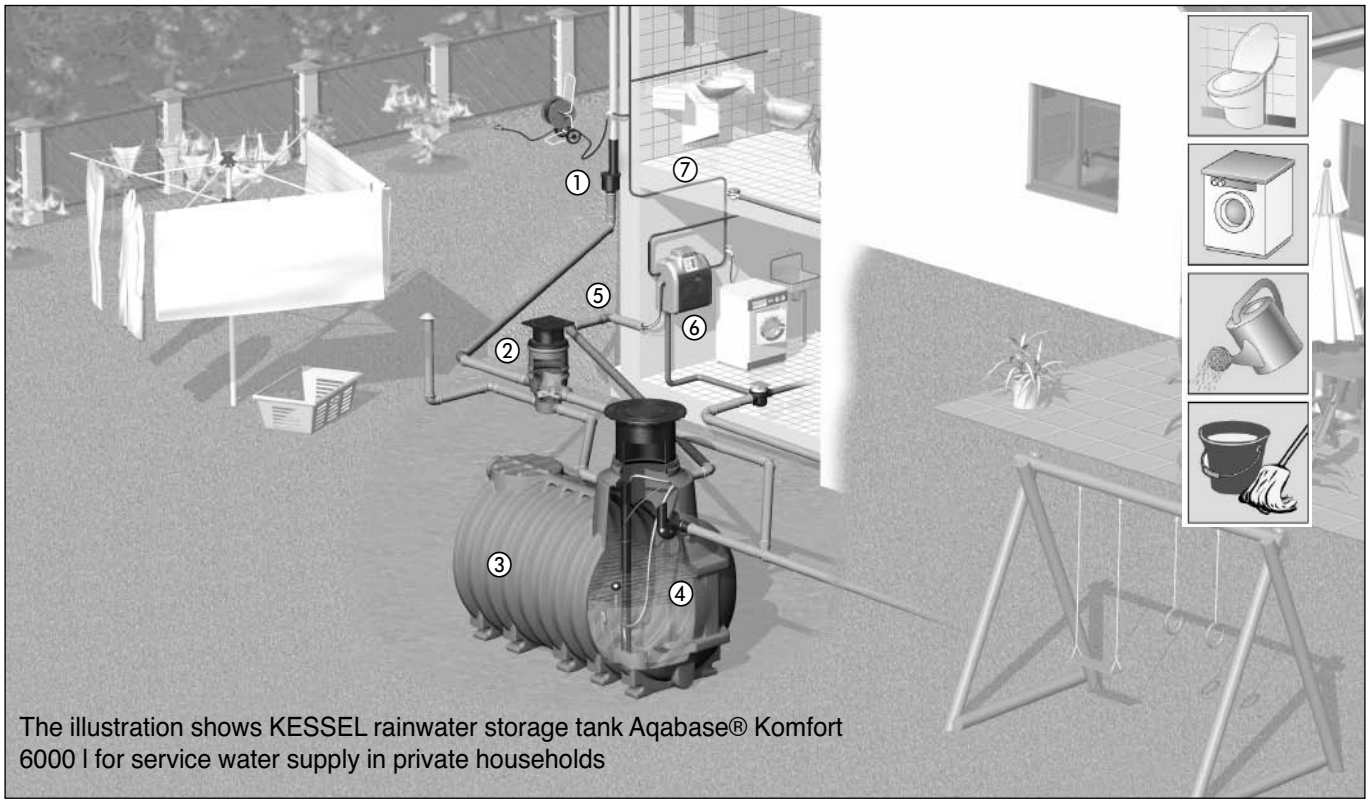
The KESSEL rainwater storage tank Aqabase® is used for:

- For collecting rainwater. This is used for the service water supply to private households, public facilities as well as trade and industry.
  Depending on the quality, the service water can be used for a wide range of different uses. In private households for flushing toilets, watering gardens, for cleaning and washing clothes. In public facilities for flushing toilets, as cleaning water and for watering green areas. Numerous commercial and industrial applications are conceivable. In addition to the sanitation area and for watering lawns / garden areas, the service water can also be used for washing and cleaning processes, air-conditioning plants and as process water. The connected rain collecting areas must be evaluated depending on the system technology and soiling level.
- The service water is not suitable for consumption and personal hygiene. “Caution, not drinking water!”
- For the intermediate storage of rainwater. By installing rainwater storage tanks with connected seepage, larger quantities of rainwater can be kept out of the sewage system and negative effects can be avoided.
- To collect spring water, groundwater and river water
- For other applications. Ask us about tailor-made solutions for your requirements.

The KESSEL rainwater storage tanks Aqabase® made of PE-LLD are supplied in different sizes with 3 m3, 4.5 m3, 6 m3 and 9 m3 useful volume. The main advantage of the 100% recyclable and light material PE is its easy placement in the excavation. In addition, the KESSEL rainwater storage tank is a monolithic tank that is absolutely impermeable to water and resistant to acid rain.

To achieve greater useful volumes, the rainwater storage tanks can be installed and piped parallel/in series.





The illustration shows KESSEL rainwater storage tank Aqabase® Komfort 6000 l for service water supply in private households

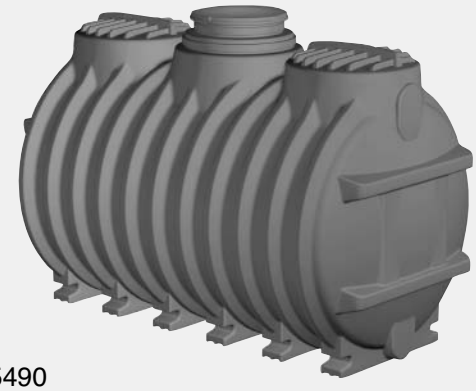
① Drainpipe
② Rainwater filter System 400
③ Rainwater storage tank Aqabase®-Komfort 6000 l
④ Coarse intake filter, floating
⑤ Empty conduit seal DN 150
⑥ Rainwater pumping system Aqabull® with Switch unit Aqatronic S
⑦ Service water network

3. Plant description and technical data

3.1 KESSEL-Rainwater storage tank *Aqabase*®

For outdoor use

Art. Nr. 85460



Art. Nr. 85490

● **Condition on delivery, scope of supply**

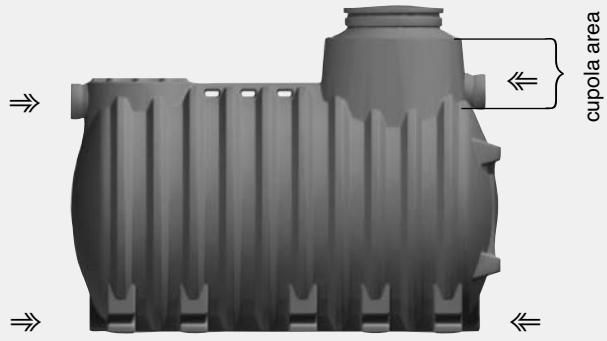
- Tank in mint-green colour with baffle for inlet slowdown
- Cover secured against unauthorised opening (childproof). Screw attachment of the cover with the dome area through 3 hexagon stainless steel bolts (DIN 571) 5 x 70 mm offset by 120 degrees.
- 2 seals for pipe duct DN 100.
- Instructions for installation, operation and maintenance

- The rainwater storage tank may only be installed outdoors in an area that is not driven over. Retrofitting with attachment pieces that can be driven over does not increase the possible load capacity.
- Aqabase for outdoor use is suitable in soil that can absorb rain and allow it to seep in or is free of groundwater. Installation in groundwater or backwater is not possible. Backwater occurs when soils that only allow little water to permeate prevent seepage water from the excavation flowing away. Backwater is formed particularly after heavy rain or when snow melts.
- Maximum permanent load on the cover is 50 kg.
- Note 3000/4500/6000l: The limits of soil cover are at 500 mm ≤ DSC ≤ 1000 mm.
  Note 9000l: The limits of soil cover are at 200 mm ≤ DSC ≤ 1000 mm. The soil cover DSC corresponds to the clearance between the ground level and the back of the rainwater storage tank.
- The parts listed in the Accessories chapter can be retrofitted.

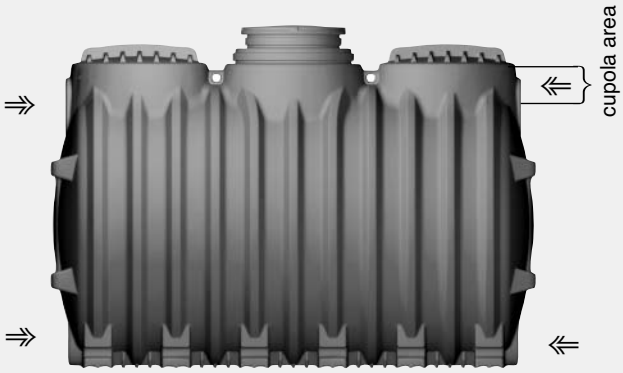
Pre-scored areas:

- On the ends and the back (max. DN 150) see in illustration
- Complete dome area (max. 3, max. DN 150, minimum centre: 90°) see illustration
- Other points are not allowed without the agreement of the manufacturer
- Only use the KESSEL saw cap for scoring the openings (see Accessories chapter)
- Only use KESSEL seals for ducts for sealing (see Accessories chapter)

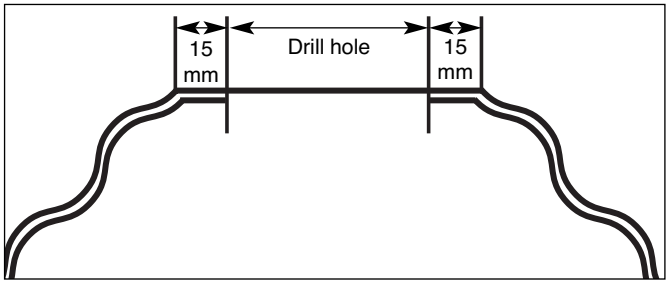
Art. Nr. 85460



Art. Nr. 85490

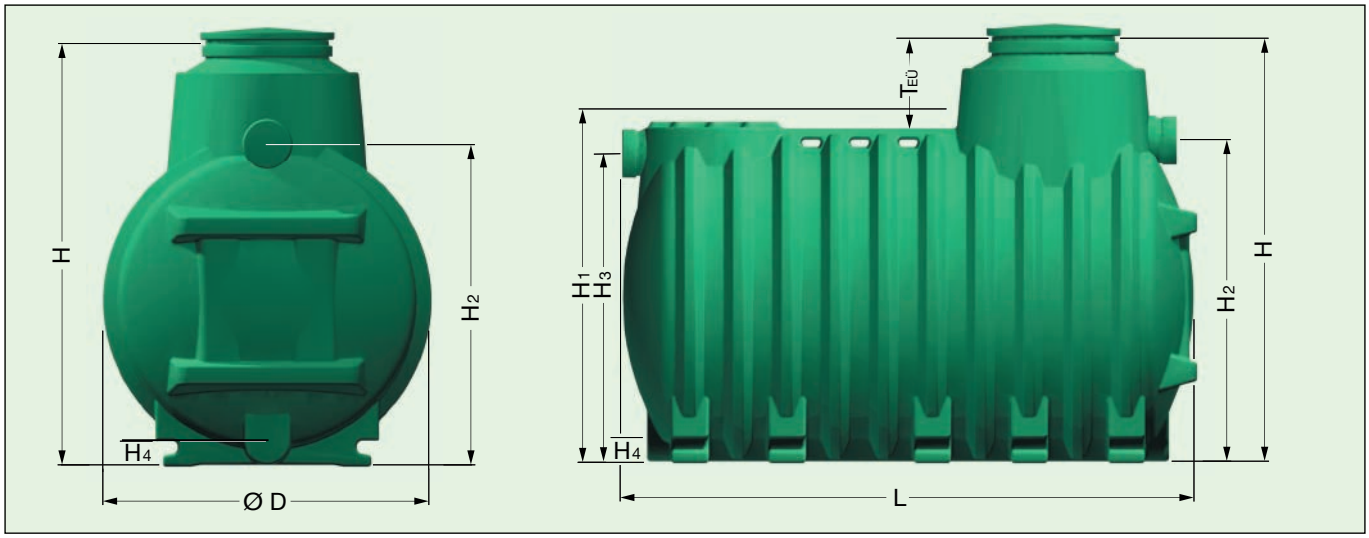


Remark: To achieve optimum sealing of the bore hole, the clearance between the edge of the bore hole and uneven contour should not be less than 15 mm.



3. Plant description and technical data

Dimensioned drawing:

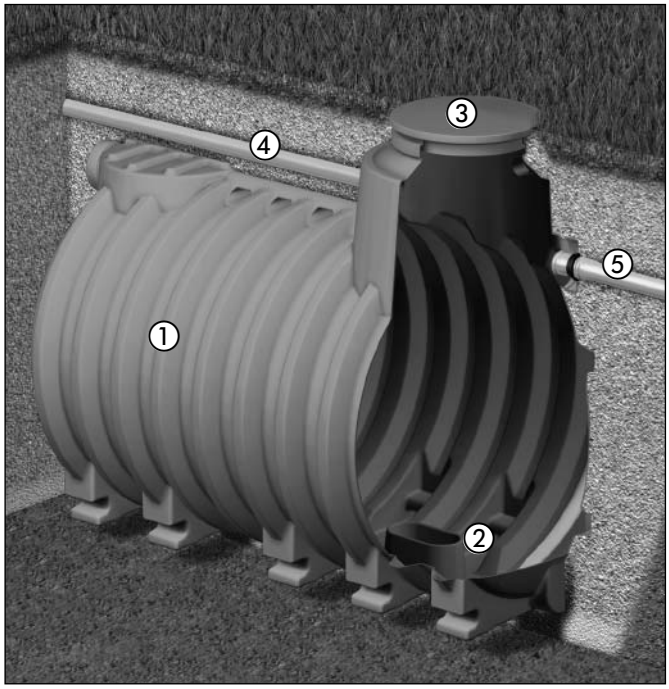


Useful volume	ØD	H	H_1*	H_2*	H_3*	H_4*	TEÜ	L	Weight in kg	Art.Nr.
3000 Liter	1200	1785	1425	1205	1130	110	500	2857	160	85430
4500 Liter	1760	2300	1940	1735	1670	150	500	2282	230	85445
6000 Liter	1760	2300	1940	1735	1670	150	500	3062	300	85460

all dimensions in mm

* Mean dimension of scored areas

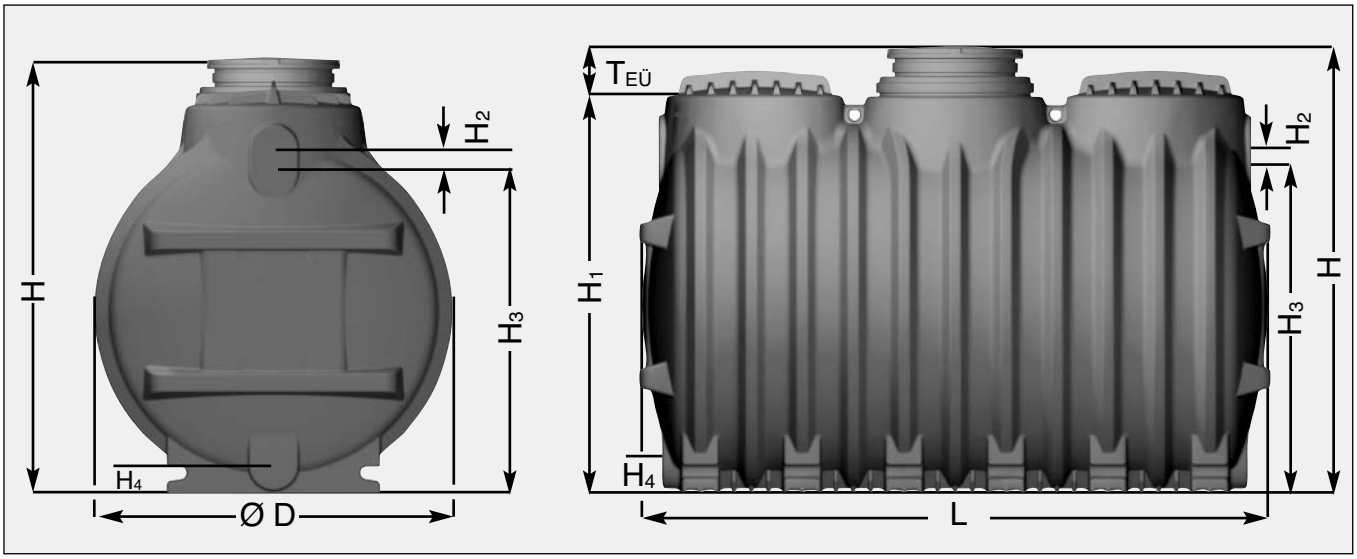
Installation suggestion (the chapter Installation and assembly must be taken into account!)



① Rainwater storage tank Aqabase® for the green area.
② Baffle for inlet slowdown
③ Childproof cover that can be walked on
④ Inlet
⑤ Outlet

3. Plant description and technical data

Dimensioned drawing:

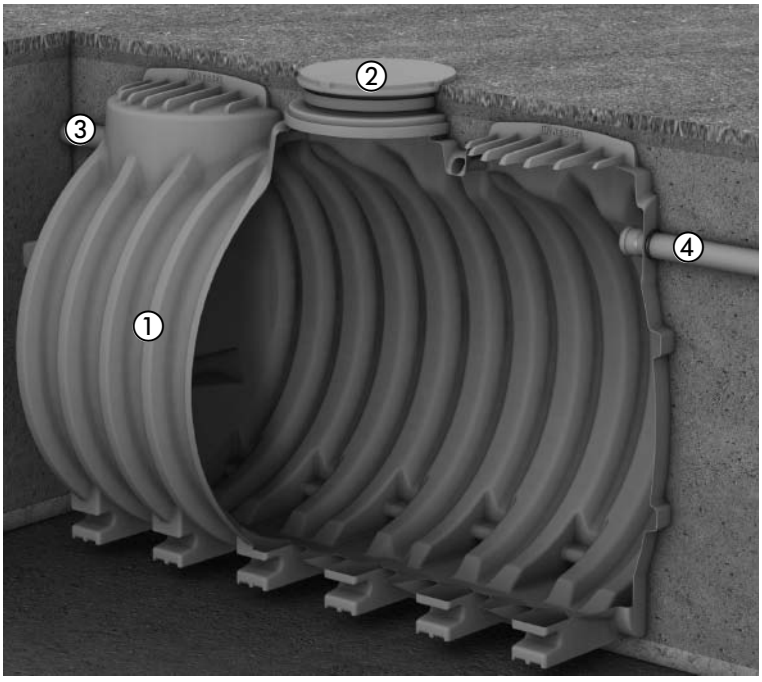


Useful volume	ØD	H	H_1	H_2	H_3	H_4	TEÜ	L	Weight in kg	Art.Nr.
9000 Liter	2010	2370	2170	150	1785	160	200	3470	360	85490

all dimensions in mm

* Mean dimension of scored areas

Installation suggestion (the chapter Installation and assembly must be taken into account!)

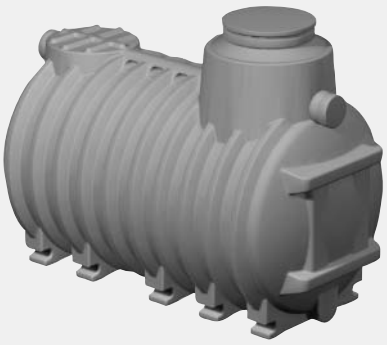


① Rainwater storage tank *Aqabase®* for the green area.
② Baffle for inlet slowdown
③ Childproof cover that can be walked on
④ Inlet
⑤ Outlet

3. Plant description and technical data

3.2 KESSEL-Rainwater storage tank *Aqabase*®

Standard



Art. Nr. 85460B

Art. Nr. 85490B

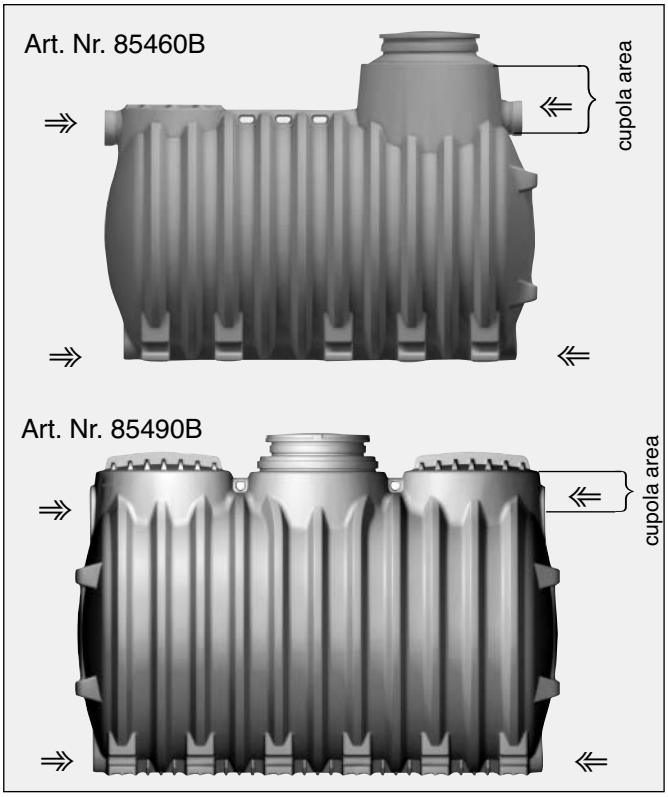
- **Condition on delivery, scope of supply**
  - Tank in grey colour with baffle for inlet slowdown
  - Cover secured against unauthorised opening (childproof). Screw attachment of the cover with the dome area through 3 hexagon stainless steel bolts (DIN 571) 5 x 70 mm offset by 120 degrees.
  - 2 seals for pipe duct DN 100.
  - Instructions for installation, operation and maintenance
- The rainwater storage tank may only be installed outdoors in an area that is not driven over. The tank can be used in areas driven over by passenger cars by being retrofitted with KESSEL attachment pieces that can be driven over.
- Installation in groundwater or backwater is possible. The maximum water level must not rise above the dimension H3 even briefly. To guarantee safety from buoyancy, the soil cover layer must be at least 700 mm thick. The information in chapter 5 “Installation and assembly” must be strictly followed

  Backwater occurs when soils that only allow little water to permeate prevent seepage water flowing away. Backwater is formed particularly after heavy rain or when snow melts.
- Maximum permanent load on the cover is 50 kg
- Note 3000/4500/6000l:

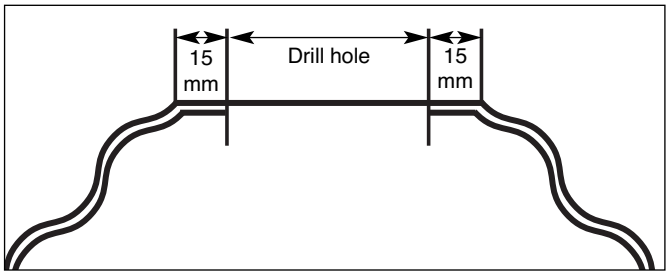
  The limits of soil cover in the area that can be walked on are 500 mm ≤ DSC ≤ 1500 mm and in the area than can be driven over at 700 mm ≤ DSC ≤ 1500 mm (The soil cover DSC corresponds to the clearance between the ground level and the back of the rainwater storage tank).
- Note 9000 l: The limits of soil cover are at 200 mm ≤ DSC ≤ 1500 mm
- The parts listed in the Accessories chapter can be retrofitted.

Pre-scored areas:

- On the ends and the back (max. DN 150) see in illustration
- Complete dome area (max. 3, max. DN 150, minimum centre: 90°) see illustration
- Other points are not allowed without the agreement of the manufacturer
- Only use the KESSEL saw cap for scoring the openings (see Accessories chapter)
- Only use KESSEL seals for ducts for sealing (see Accessories chapter)

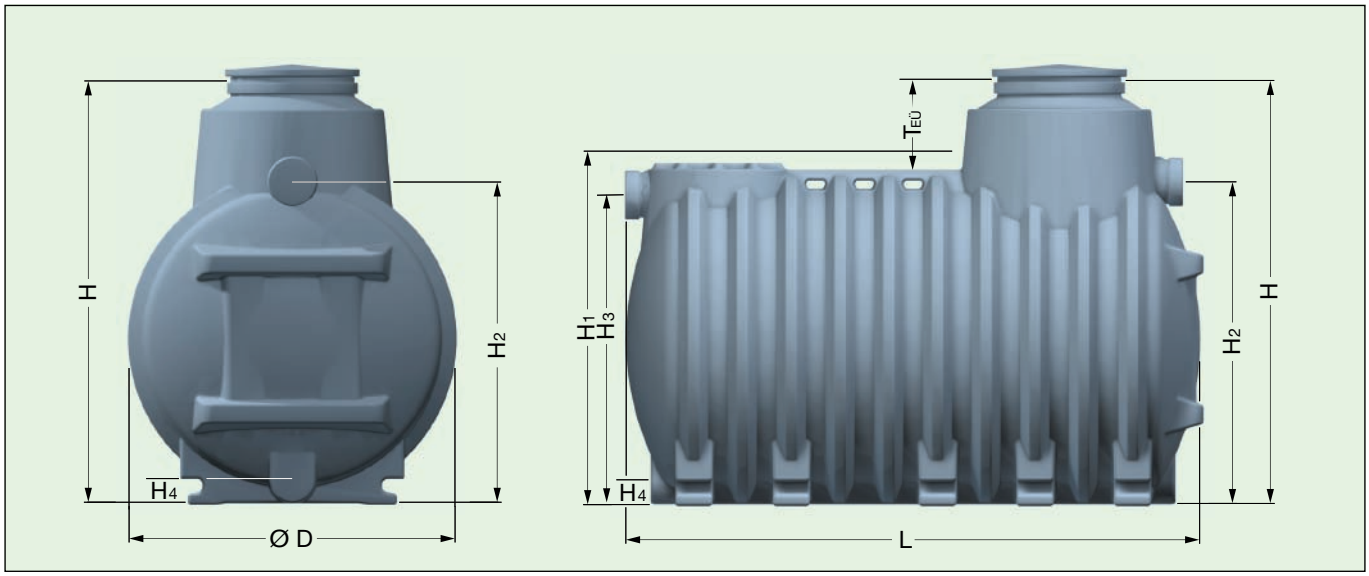


Remark: To achieve optimum sealing of the bore hole, the clearance between the edge of the bore hole and uneven contour should not be less than 15 mm.



3. Plant description and technical data

Dimensioned drawing:

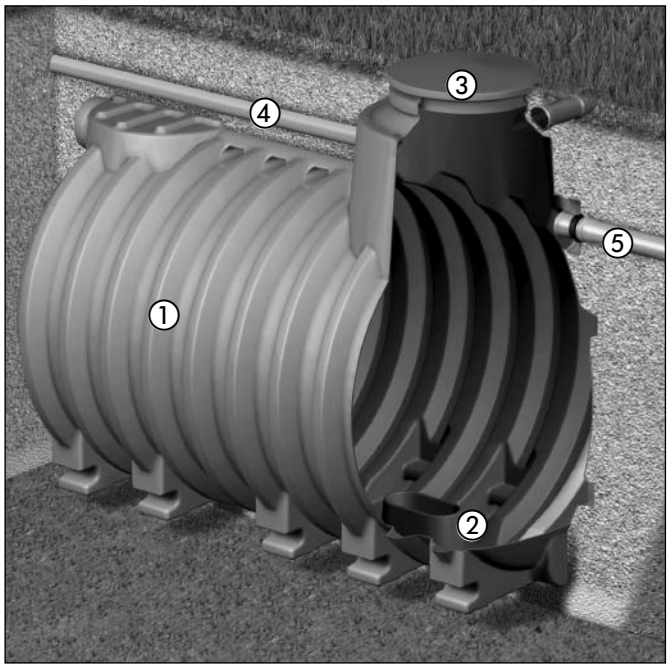


Useful volume	ØD	H	H_1*	H_2*	H_3*	H_4*	TEÜ	L	Weight in kg	Art.Nr.
3000 Liter	1200	1785	1425	1205	1130	110	500	2857	190	85430B
4500 Liter	1760	2300	1940	1735	1670	150	500	2282	270	85445B
6000 Liter	1760	2300	1940	1735	1670	150	500	3062	370	85460B

all dimensions in mm

* Mean dimension of scored areas

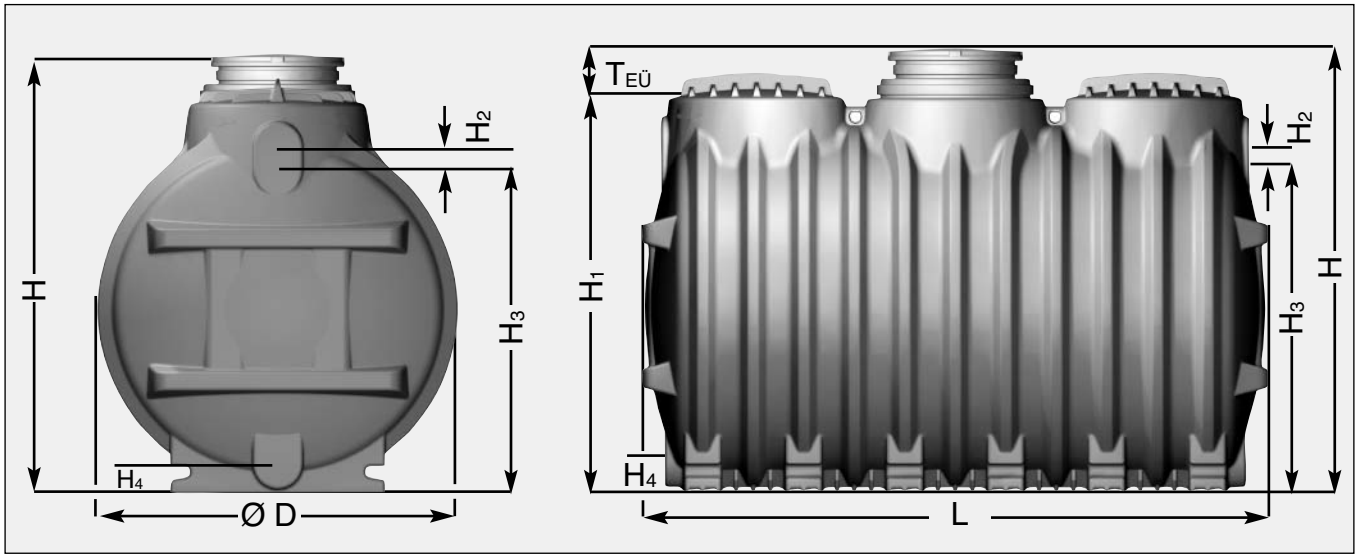
Installation suggestion (the chapter Installation and assembly must be taken into account!)



① Rainwater storage tank *Aqabase®* Standard.
② Baffle for inlet slowdown
③ Childproof cover that can be walked on
④ Inlet
⑤ Outlet

3. Plant description and technical data

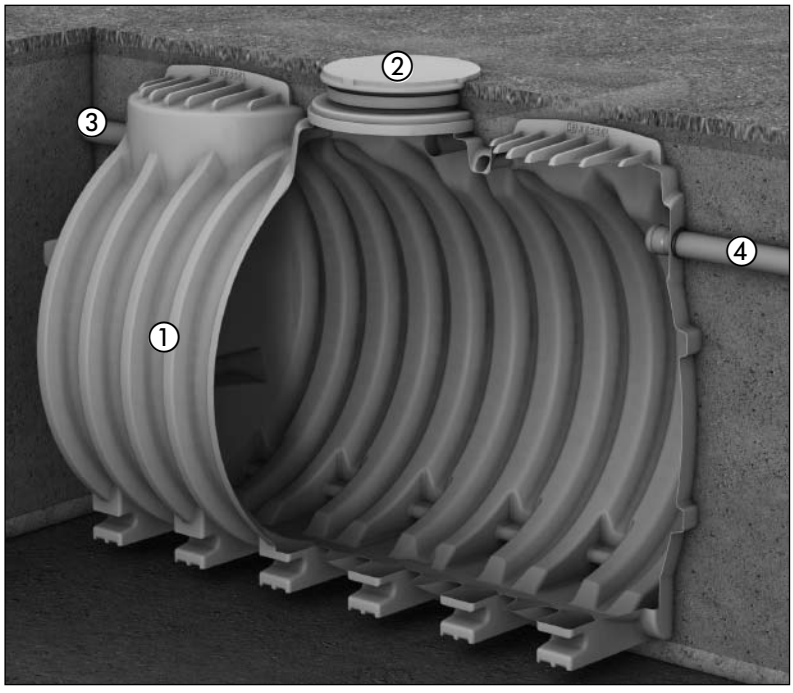
Dimensioned drawing:



Useful volume	ØD	H	H_1*	H_2*	H_3*	H_4*	TEÜ	L	Weight in kg	Art.Nr.
9000 Liter	2010	2370	2170	150	1785	160	200	3470	440	85490B

all dimensions in mm

Installation suggestion (the chapter Installation and assembly must be taken into account!)



① Rainwater storage tank *Aqabase®* Standard.
② Childproof cover that can be walked on
③ Inlet
④ Outlet

3. Plant description and technical data

3.3 KESSEL-Rainwater storage tank *Aqabase*®

Comfort

Art. Nr. 85460/80B

Art. Nr. 85490/80B

● **Condition on delivery, scope of supply**
- Tank grey
- Telescopic height adjustment of attachment piece
- Cover Class B according to EN 124 made of cast iron, lockable, surface waterproof with lift-out key. Secured against unauthorised opening through 3 square bolts.
- Inlet DN 100 with integrated inlet slowdown, connection through slip-on sleeve
- Outlet DN 100 with integrated overflow siphon, connection through pointed end
- Empty conduit connection DN 150 with seal for pipe duct and KG socket plug
- Instructions for installation, operation and maintenance

● The rainwater storage tank can be used in areas driven over by cars.

● Note 3000/4500/6000l:
The limits of soil cover in the area that can be walked on are 500 mm ≤ DSC ≤ 1500 mm and in the area than can be driven over at 700 mm ≤ DSC ≤ 1500 mm (The soil cover DSC corresponds to the clearance between the ground level and the back of the rainwater storage tank).

● Note 9000l: The limits of soil cover are at 200 mm ≤ DSC ≤ 1500 mm.

● Installation in groundwater. .

● Installation in groundwater or backwater is possible. The maximum water level must not rise above the dimension H3 even briefly. To guarantee safety from buoyancy, the soil cover layer must be at least 700 mm thick. The information in chapter 5 “Installation and assembly” must be strictly followed. Backwater occurs when soils that only allow little water to permeate prevent seepage water flowing away. Backwater is formed particularly after heavy rain or when snow melts.

● Installation in areas that can be driven over, Class D. When the tanks are installed in areas that can be driven over (Class D), a concrete base plate must be placed over the rainwater storage tank. A formwork plan and reinforcement drawing can be provided on request.

● The parts listed in the Accessories chapter can be retrofitted.

Pre-scored areas:
- On the ends and the back (max. DN 150) see “➡” in illustration
- Other points are not allowed without the agreement of the manufacturer
- Only use the KESSEL saw cap for scoring the openings (see Accessories chapter).
- Only use KESSEL seals for ducts for sealing (see Accessories chapter).

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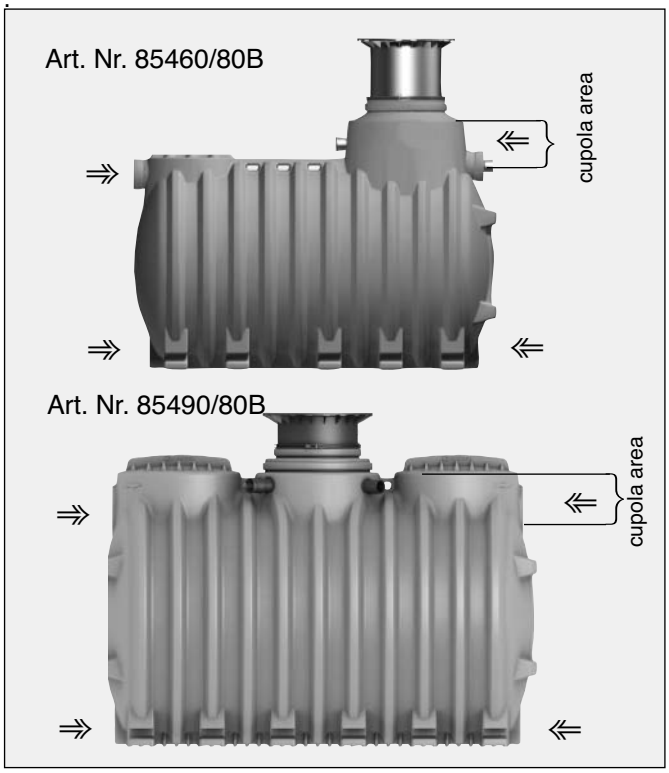
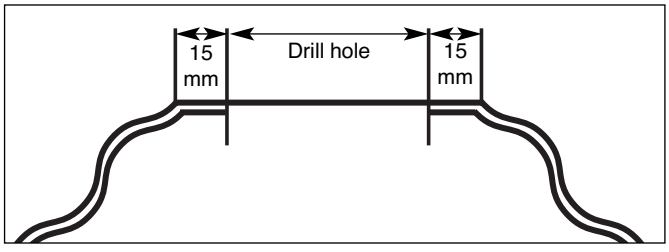
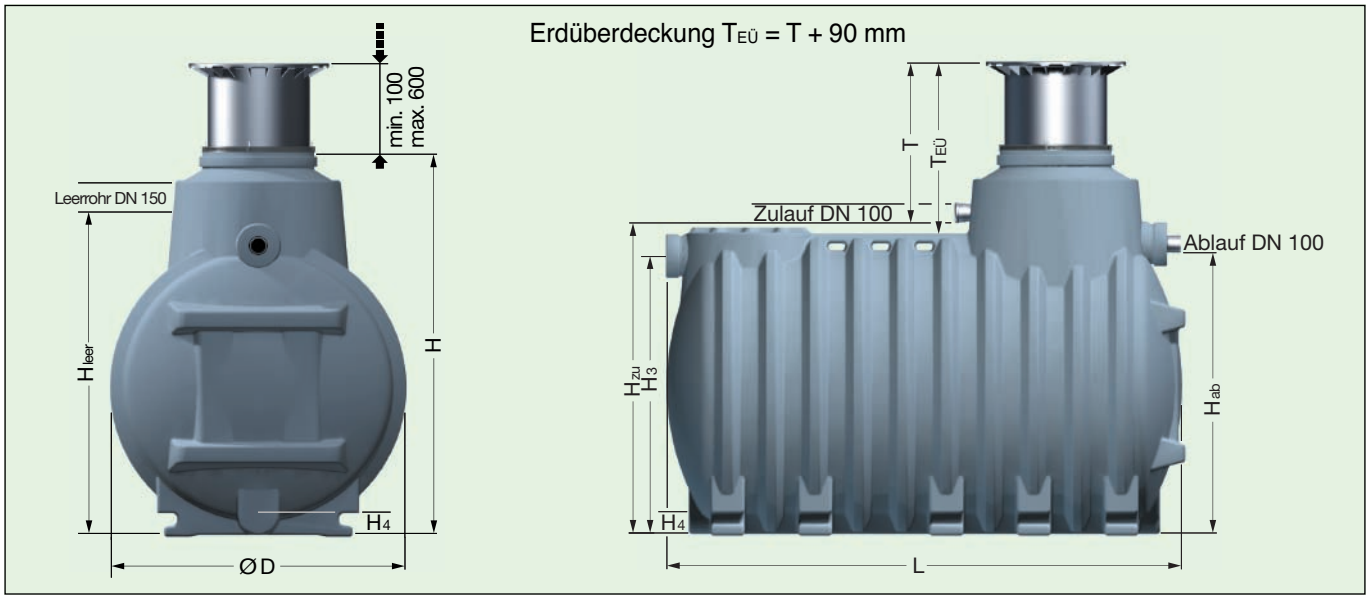


Remark: To achieve optimum sealing of the bore hole, the clearance between the edge of the bore hole and uneven contour should not be less than 15 mm.



3. Plant description and technical data

Dimensioned drawing:

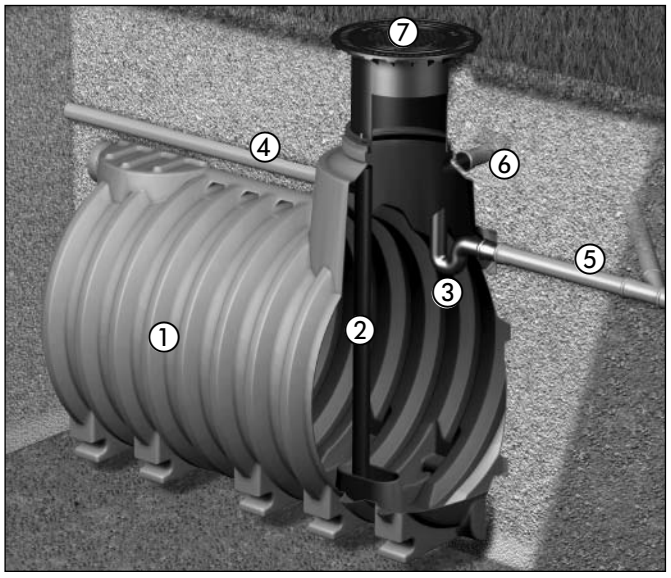


Useful volume	ØD	H	H_{zu}*	H_{ab}*	H_{leer}*	H_3**	H_4**
3000 Liter	1200	1785	1375	1155	1420	1130	110
4500 Liter	1760	2300	1895	1675	1945	1670	150
6000 Liter	1760	2300	1895	1675	1945	1670	150

Useful volume	L	MIN		MAX		Weight in kg			Art.Nr.
		T	$T_{EÜ}$	T	$T_{EÜ}$	Aqabase®	Attachement + Fixtures Class A/B	Attachement + Fixtures Class D	
3000 Liter	2857	510	600	1010	1100	190	75	105	85430/80B(D)
4500 Liter	2282	510	600	1010	1100	270	75	105	85445/80B(D)
6000 Liter	3062	510	600	1010	1100	370	75	105	85460/80B(D)

all dimensions in mm * Base dimension ** Mean dimension of scored areas

Installation suggestion (the chapter Installation and assembly must be taken into account!)

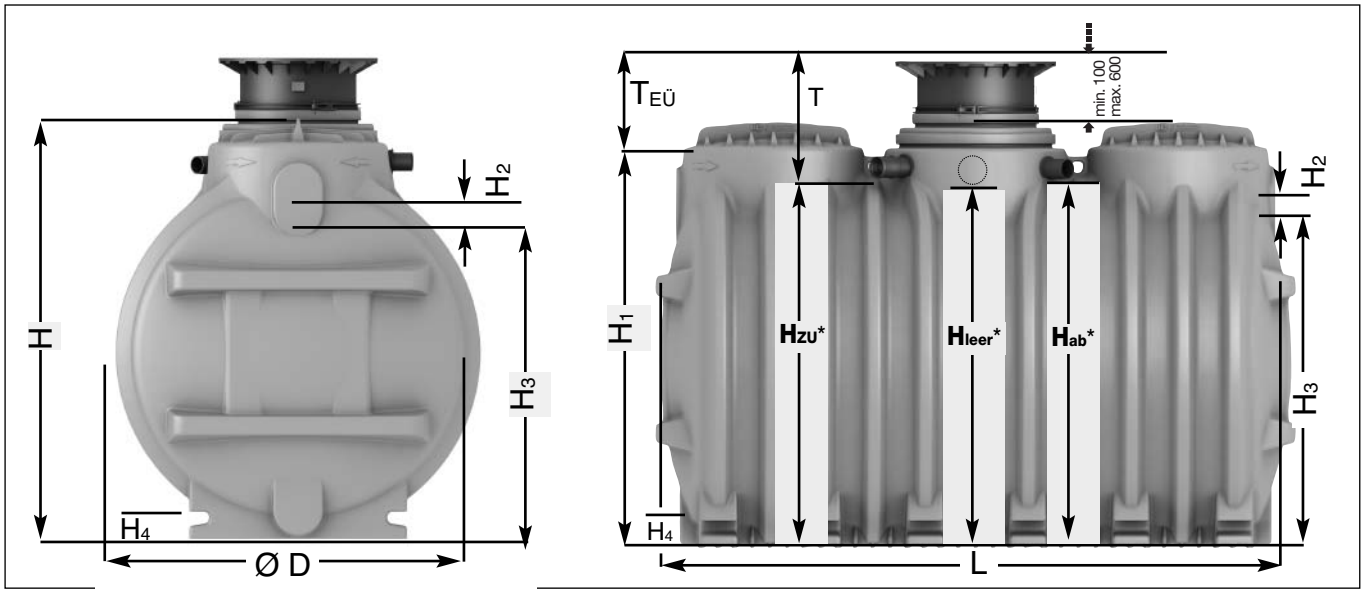


① Rainwater storage tanks Aqabase® Komfort
② Inlet slowdown
③ Overflow siphon
④ Inlet for filtered rainwater
⑤ Outlet to the sewer / seepage
⑥ Empty conduit connection
⑦ Attachment piece

3. Plant description and technical data

Dimensioned drawing:

Erdüberdeckung $T_{EÜ}$ = T -140 mm

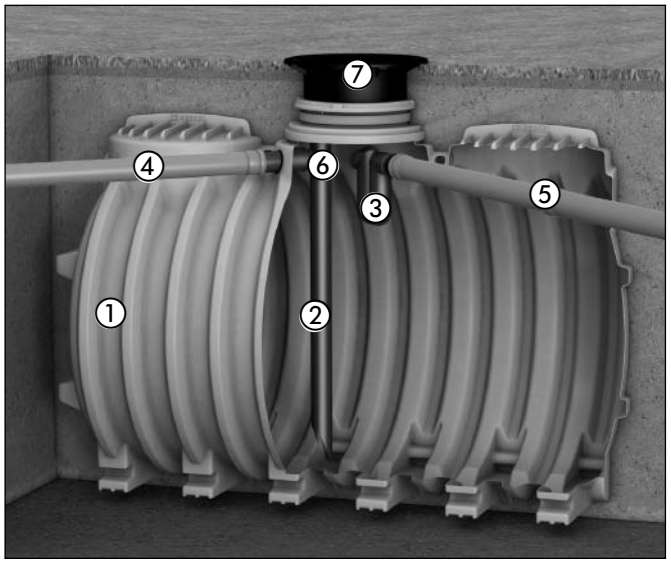


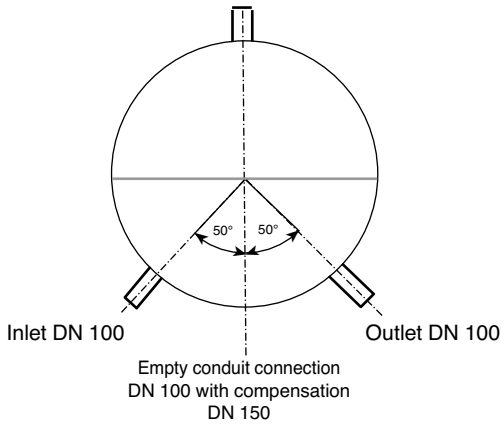
Useful volume	ØD	H	Hzu*	Hab*	Hleer*	H1	H2	H3	H4
9000 Liter	2010	2370	2030	2020	2040	2170	150	1785	160

Useful volume	L	MIN		MAX		Weight in kg			Art..Nr.
		T	TEÜ	T	TEÜ	Aqabase®	Attachement + Fixtures Class A/B	Class D	
9000 Liter	3470	440	300	940	800	440	75	105	85490/80B(D)

all dimensions in mm * Base dimension

Installation suggestion (the chapter Installation and assembly must be taken into account!)





① Rainwater storage tanks Aqabase® Komfort
② Inlet slowdown
③ Overflow siphon
④ Inlet for filtered rainwater
⑤ Outlet to the sewer / seepage
⑥ Empty conduit connection
⑦ Attachment piece

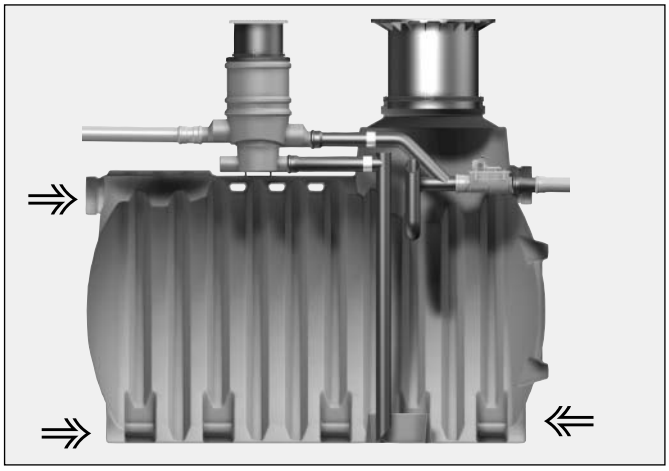
3.4 KESSEL Rainwater storage tank *Aqabase*®

Multicompact

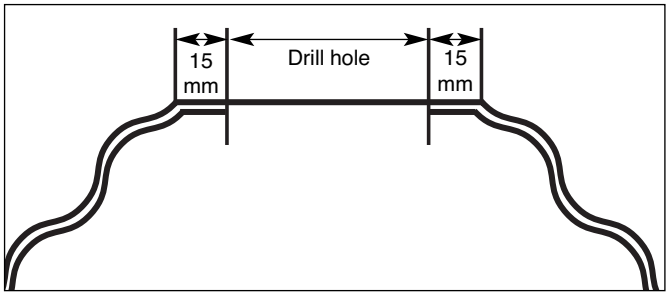
● **Condition on delivery, scope of supply**
- Tank grey
- Telescopic height adjustment of attachment piece
- Cover Class B according to EN 124 made of cast iron, lockable, surface waterproof with lift-out key. Secured against unauthorised opening by 3 inner hex bolts.
- Inlet DN 100 with integrated rainwater filter System 400 with back-flushing unit and inlet slowdown, connection through slip-on sleeve
- Outlet DN 100 with overflow siphon and backwater valve with integrated rat protection, connection through pointed end
- Empty conduit connection DN 150 with seal for pipe duct and KG socket plug
- Instructions for installation, operation and maintenance

● The rainwater storage tank can be used in areas driven over by cars.
● The limits of soil cover in the area that can be walked on are 500 mm ≤ DSC ≤ 1500 mm and in the area than can be driven over at 700 mm ≤ DSC ≤ 1500 mm (The soil cover DSC corresponds to the clearance between the ground level and the back of the rainwater storage tank).
● The parts listed in the Accessories chapter can be retrofitted.
● Installation in groundwater.
● The maximum water level must not rise above the base dimension of the standard outlet even briefly. To guarantee safety from buoyancy, the soil cover layer must be at least 700 mm thick. The information in chapter 5 “Installation and assembly” must be strictly followed. Backwater occurs when soils that only allow little water to permeate prevent seepage water flowing away. Backwater is formed particularly after heavy rain or when snow melts.
● Installation in areas that can be driven over, Class D. When the tanks are installed in areas that can be driven over (Class D), a concrete base plate must be placed over the rainwater storage tank. A formwork plan and reinforcement drawing can be provided on request.
● The parts listed in the Accessories chapter can be retrofitted.

Pre-scored areas:
● On the ends and the back (max. DN 150) see in illustration
● Other points are not allowed without the agreement of the manufacturer
● Only use the KESSEL saw cap for scoring the openings (see Accessories chapter).
● Only use KESSEL seals for ducts for sealing (see Accessories chapter).

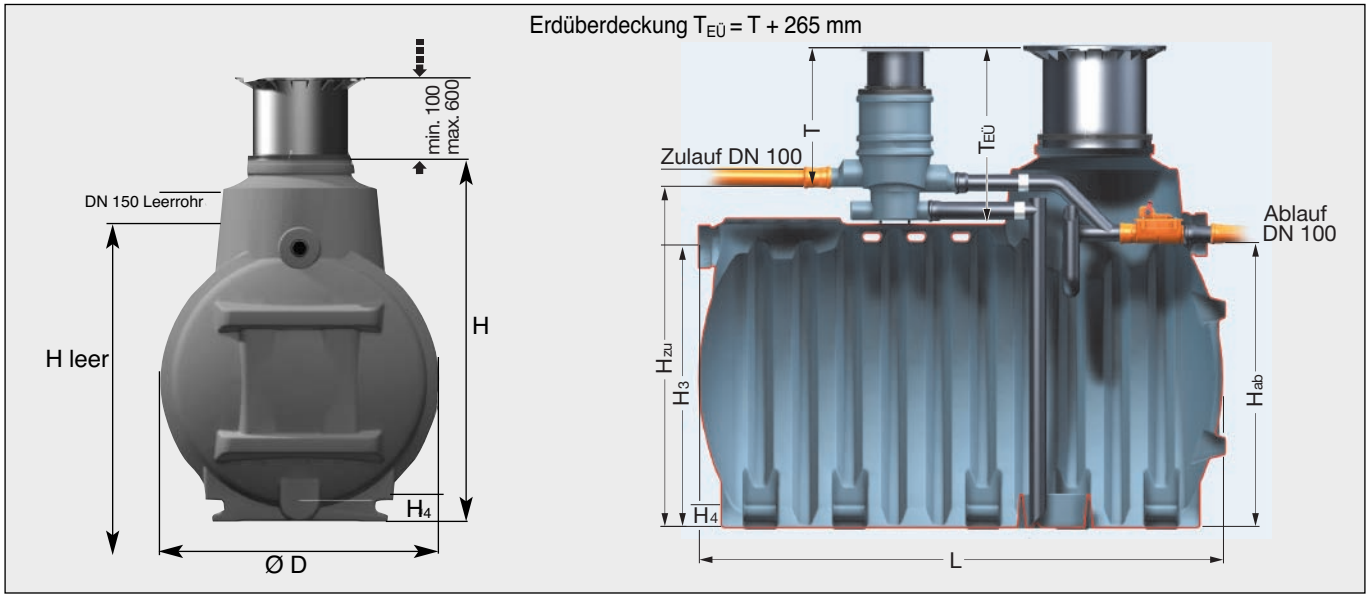


Remark: To achieve optimum sealing of the bore hole, the clearance between the edge of the bore hole and uneven contour should not be less than 15 mm.



3. Plant description and technical data

Dimensioned drawing:

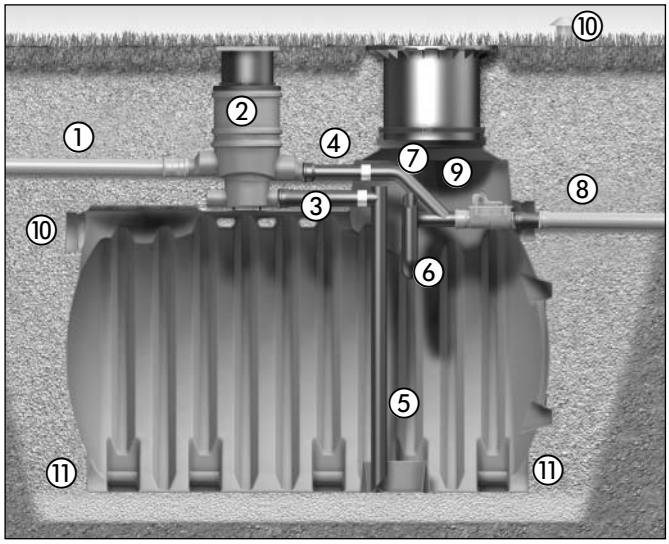


Useful volume	ØD	H	H_{ZU}*	H_{ab}*	H_{leer}*	H_3**	H_4**
3000 Liter	1200	1785	1425	1155	1420	1130	110
4500 Liter	1760	2300	1945	1675	1945	1670	150
6000 Liter	1760	2300	1945	1675	1945	1670	150

Useful volume	L	MIN		MAX		Weight in kg			Art.Nr.
		T	$T_{EÜ}$	T	$T_{EÜ}$	Aqabase®	Attachement + Fixtures CLASS A/B	Attachement + Fixtures CLASS D	
3000 Liter	2857	335	600	835	1100	190	107	148	85530/80B(D)
4500 Liter	2282	335	600	835	1100	270	107	148	85545/80B(D)
6000 Liter	3062	335	600	835	1100	370	107	148	85560/80B(D)

all dimensions in mm * Base dimension ** Mean dimension of scored areas

Installation suggestion (the chapter Installation and assembly must be taken into account!)



KESSEL Rainwater storage tank Aqabase® Multicompact with rainwater filter and backwater valve

① Inlet for unfiltered rainwater
② Rainwater filter System 400
③ Filtered rainwater to the tank
④ Soiled water to the sewer/for seeping
⑤ Inlet slowdown
⑥ Overflow siphon
⑦ Empty conduit connection
⑧ Outlet to the sewer / seepage
⑨ Backwater valve
⑩ Ventilation possibility
⑪ Scored area for connection for larger useful volume

3.5 KESSEL-Rainwater storage tank *Aqabase*®

Retention

● **Condition on delivery, scope of supply**
- Tank grey
- Telescopic height adjustment of attachment piece
- Cover Class B according to EN 124 made of cast iron, lockable, surface waterproof with lift-out key. Secured against unauthorised opening by 3 inner hex bolts.
- Inlet DN 100 with integrated inlet slowdown, connection through slip-on sleeve
- Outlet DN 100 with outlet throttling (0.1 l/s), emergency overflow DN 100 and overflow siphon, connection through pointed end
- Empty conduit connection DN 150 with seal for pipe duct and KG socket plug
- Instructions for installation, operation and maintenance

● The rainwater storage tank can be used in areas driven over by cars.
● The limits of soil cover in the area that can be walked on are 500 mm ≤ DSC ≤ 1500 mm and in the area than can be driven over at 700 mm ≤ DSC ≤ 1500 mm (The soil cover DSC corresponds to the clearance between the ground level and the back of the rainwater storage tank).
● The parts listed in the Accessories chapter can be retrofitted.
● Installation in groundwater.
● The maximum water level must not rise above the base dimension of the standard outlet even briefly. To guarantee safety from buoyancy, the soil cover layer must be at least 700 mm thick. The information in chapter 5 “Installation and assembly” must be strictly followed. Backwater occurs when soils that only allow little water to permeate prevent seepage water flowing away. Backwater is formed particularly after heavy rain or when snow melts.
● Installation in areas that can be driven over, Class D. When the tanks are installed in areas that can be driven over (Class D), a concrete base plate must be placed over the rainwater storage tank. A formwork plan and reinforcement drawing can be provided on request.
● The parts listed in the Accessories chapter can be retrofitted.

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● On the ends and the back (max. DN 150) see in illustration
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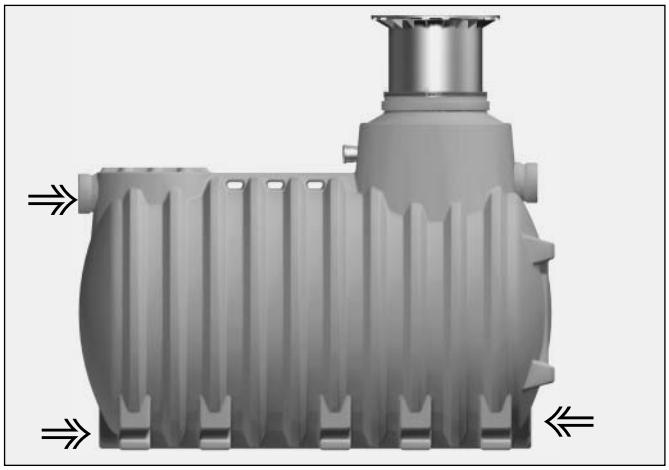
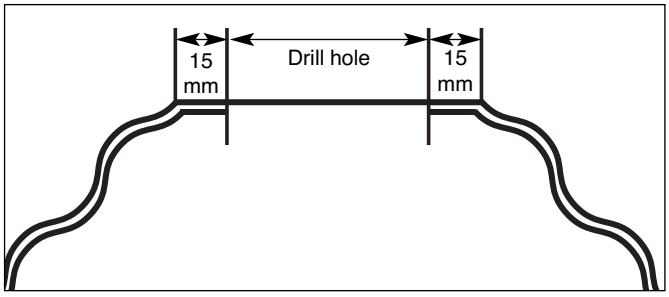
● Only use KESSEL seals for ducts for sealing (see Accessories chapter).

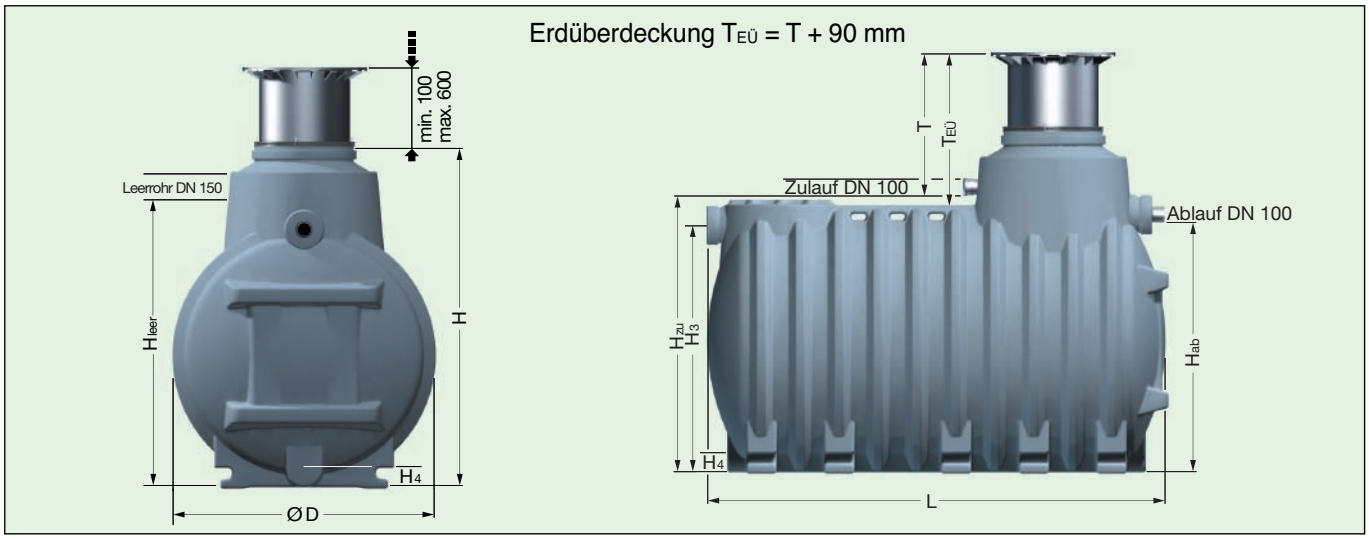


Remark: To achieve optimum sealing of the bore hole, the clearance between the edge of the bore hole and uneven contour should not be less than 15 mm.



3. Plant description and technical data

Dimensioned drawing:



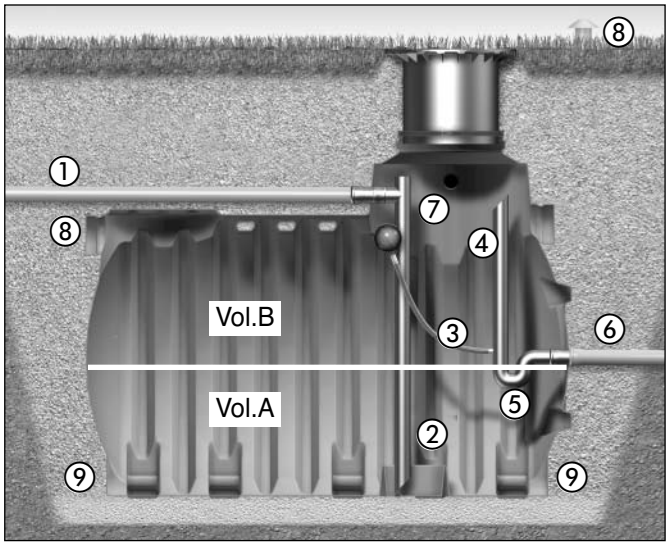
Useful volume	ØD	H	H_{ZU}*	H_{leer}*	H_3**	H_4**
3000 Liter	1200	1785	1425	1420	1130	110
4500 Liter	1760	2300	1945	1945	1670	150
6000 Liter	1760	2300	1945	1945	1670	150

Useful volume	L	MIN		MAX		Weight in kg			Art.Nr.
		T	$T_{EÜ}$	T	$T_{EÜ}$	Aqabase®	Attachement + Fixtures Class A/B	Class D	
3000 Liter	2857	335	600	835	1100	190	80	110	85630/80B(D)
4500 Liter	2282	335	600	835	1100	270	80	110	85645/80B(D)
6000 Liter	3062	335	600	835	1100	370	80	110	85660/80B(D)

Useful volume	H_{ab} with a storage volume for the rainwater using Vol.A in Liter										
	1000	1500	2000	2500	3000	3500	4500	4500	5000	5500	6000
3000 l	470	650	820	1050	1155						
4500 l	500	670	820	950	1090	1280	1500	1675			
6000 l	440	560	700	800	890	1000	1130	1220	1370	1530	1675

all dimensions in mm * Base dimension ** Mean dimension of scored areas

Installation suggestion (the chapter Installation and assembly must be taken into account!)



KESSEL Rainwater storage tank Aqabase® Retention for the intermediate storage of rainwater

① Inlet for filtered rainwater
② Inlet slowdown
③ Throttled outlet (outlet quantity from 0.1-1 l/s fixed ex factory)
④ Free outlet
⑤ Overflow siphon
⑥ Outlet to the sewer / seepage
⑦ Empty conduit connection
⑧ Ventilation possibility
① Scored area for connection for larger useful volume

Vol.A Storage volume for rainwater use
Vol.B Retention volume is discharged throttled to the sewer/seepage after heavy rain
Total volume = Vol.A + Vol.B

4. Packaging, Transport and Storage

The chapter "Safety instructions" must be heeded!

4.1 Packaging

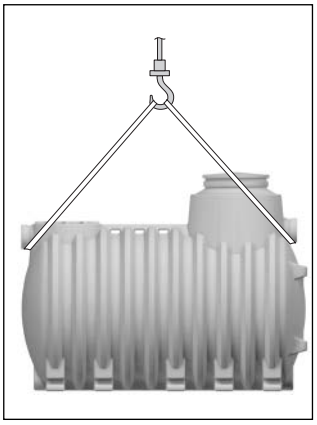
Packaging the tanks for the purpose of transport or storage is not necessary if the following points are observed.

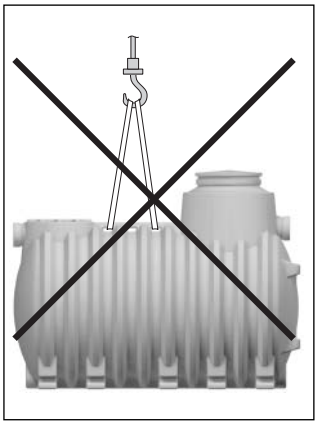
Note: The ingress of impurities (dirt, dust, etc.) into the rainwater storage tank must be avoided. If necessary, covers must be attached to all openings.

4.2 Transport

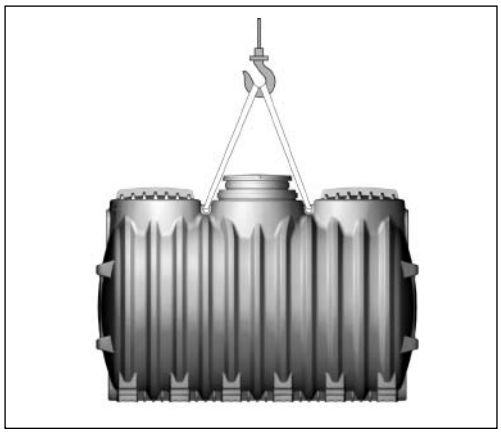
- Transport must only be carried out by companies who are in possession of the technical experience, suitable implements, equipment and means of transport, as well as adequately trained personnel.
- The tanks must be transported such that they are not subject to undue stresses and that a dislocation during transport is ruled out. If restraints are used, these must be attached such that damage to the tanks is ruled out (e.g. use of canvas belts, hemp ropes). The use of wire ropes or chains is not permissible.

Transport of 3000 l, 4500 l, 6000 l tanks





Transport of 9000 l tank



- When lifting, transporting and putting down the tanks, impact loads must be avoided. If a fork lift is used, the tanks must be secured while they are transported on the fork lift. Muffs and other projecting tank parts must not be used for attachment or for lifting purposes. It is not permissible to roll or drag the tanks across the floor.
- The tanks must be secured against undue dislocations during transport. The manner of fastening may not damage the tanks.

4.3 Storage

If it is necessary to store the tanks prior to installation, this may only be done temporarily and on level ground that has been cleared of any sharp-edged objects. In case of outdoor storage, the tanks must be protected against damage, exposure to storms and soiling.

5. Installation and assembly

During the intermediate storage of the rainwater storage tank and until completion of the installation work, suitable safeguarding measures must be taken at the building site to prevent accidents and damage to the rainwater storage tank.

The chapter "Safety instructions" must be heeded!

5.1 Installation conditions

Installation must only be carried out by companies who are in possession of the technical experience, suitable implements and equipment as well as adequately trained personnel. A measurement of the soil conditions with a view to its structural suitability must have been carried out (soil classification for structural purposes DIN 18196). The maximum occurring groundwater or backwater level must be established.

Installation in groundwater or backwater

	Install. possibly	max. Ground-- water level	minima Height above ground $T_{EÜ}$
Aqabase® for the Green area	no	——	——
Aqabase® -Standard -Comfort -Multikompakt -Retention	yes	till outboard wing alternatively Dimension H3	700 mm

A sufficient drainage of seepage water is compulsory for soils that are impermeable to water. The types of loads occurring such as maximum travelling loads and installation depth must have been clarified.

5.2 Filling material

Subbase:	Round-grain gravel (max. graining 8/16) acc. to DIN 4226-1
Tank bed:	sand
Tank encasing:	Round-grain gravel (max. graining 8/16) acc. to DIN 4226-1
Area outside the Tank encasing:	material of suitable consistence
Top layer:	Topsoil or similar

5.3 Excavation pit

The foundation soil must be horizontal and level, so that the system can be put down onto its full surface, in addition, the foundation soil must guarantee a sufficient load bearing capacity. As subbase a compacted round-grain gravel (max. graining 8/16, thickness minimum 30 cm, Dpr≥95%) and on top of that 3 - 10 cm compacted sand are necessary. The clearance between excavation pit wall and tank must be at least 70 cm. The slopes must comply with DIN 4124. The depth of the excavation pit must be dimensioned in such a way that the limits of soil cover are not exceeded.
MIN ≤ DSC ≤ MAX (see the chapter “Technical Data”).

● Installation in terrain with a sloping location

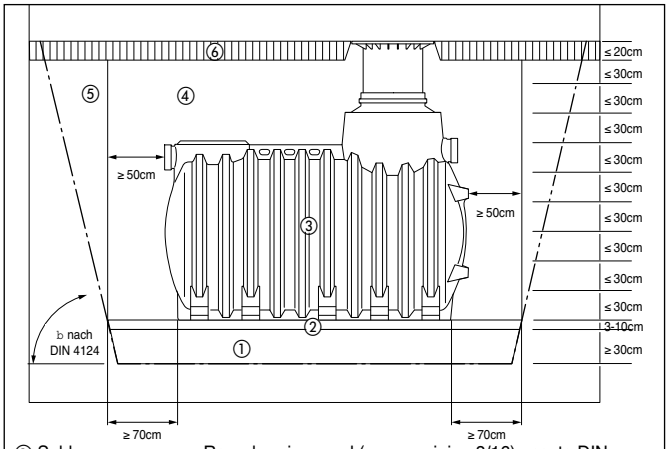
When installing the rainwater storage tank in terrain with a sloping location, care must always be taken that the laterally thrusting soil pressure of disturbed ground is absorbed by a correspondingly designed retaining wall.

● Connecting several rainwater storage tanks

If several tanks are installed next to one another/behind one another, the clearance between the tanks must be at least 70 cm.

● Frost-free depth for use all year round

When installing the rainwater storage tank it is imperative to pay attention to the locally determined frost-free depth. To guarantee problem-free operation in winter, too, the inlet and



① Subbase: Round-grain gravel (max. graining 8/16) acc. to DIN 4226-1compacted with Dpr≥95%
② Tank bed: compacted sand
③ Aqabase®
④ Tank encasing: Round-grain gravel (max. graining 8/16) acc. to DIN 4226-1compacted with Dpr≥95%
⑤ Area outside tank encasing: material of suitable consistence
⑥ Top layer: Topsoil or similar

outlet pipes must also be routed at a frost-free depth when the rainwater storage tank is installed. Unless otherwise specified by the authorities, the frost-free depth is as a rule located at approx. 80 cm.

5.4 Tests before installation

Immediately before placing the tank into the excavation pit, the technical expert of the company that has been commissioned to carry out the installation has to check and certify the following:
- The sound condition of the tank wall;
- The proper condition of the excavation pit with a view to its dimensions and base bedding;
- Consistence of the filling material graining.

5.5 Installation

To avoid deformation of the tank, filling the tank with water and backfilling the excavation pit should generally be carried out at the same time and quickly.

5. Installation and assembly

● **Placement**
The tanks must be placed shock-free into the excavation pit with the aid of suitable equipment and put down onto the base bedding (see also chapter “Transport”).

● **Filling the tank**
Fill the tank up to the outlet with water.

● **Backfilling excavation pit**
The tank encasing must be produced in a width of at least 50 cm. The individual layers should not exceed a height of 30 cm. They must be compacted using light compacting equipment (Dpr≥95%). Damage to the tank wall and a dislocation of the tanks during and after installation must be ruled out.

● **Connection of the tank**

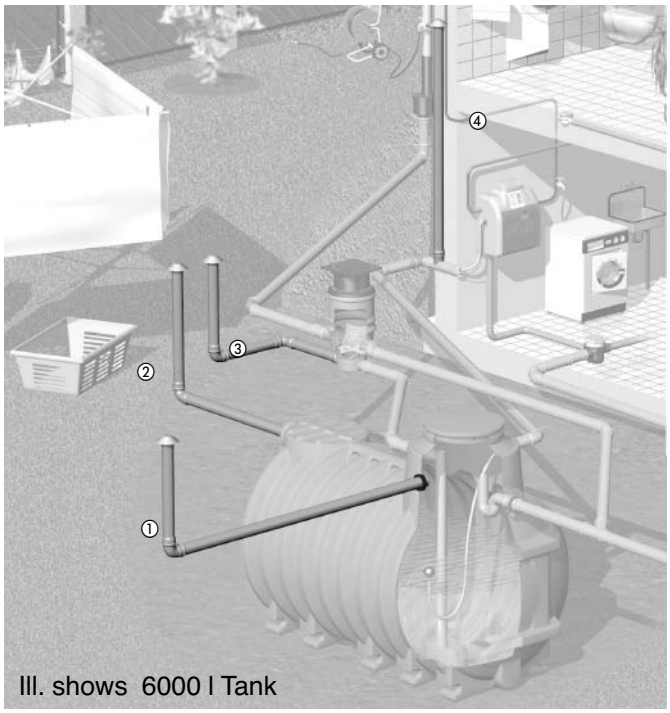
a) Once the excavation pit has been filled up to the lower edge of the inlet and outlet pipe connections and compacted, the inlet and outlet pipes and the empty conduit required for the power and water pipes must be laid (frost-free in the case of year-round use) and connected. When laying the empty conduit, simply remove the KG socket plug DN 150 and lay the KG empty conduit in DN 150 for the power and water pipes from the rainwater storage tank to the rainwater pumping station or to the house at a gradient, and place a socket DN 150 at the end on the inside cellar wall. This allows the backwater-proof KESSEL empty conduit seal to be fitted correctly later. The empty conduit must be kept as short as possible. Unnecessary changes in direction must be avoided. To make it easier to pass cables and pipes through later, bends > 45° must be avoided.

b) **Laying with gradient.** When inlet pipes are laid from the rainwater filter/drainpipe to the cistern and from the overflow connection to the sewer connection or to seepage, care must be taken that there is sufficient gradient in the direction of flow according to DIN 1986.

c) **Backwater protection for sewer connection.** If the overflow connection of the rainwater storage tank is connected to the public sewer, it must be protected from backwater according to DIN 1986 either by a lifting station or by free gradient to the sewer or alternatively through a backwater valve according to DIN 1997 for wastewater free of sewage (rainwater). When a backwater valve is used, care must be taken that the emergency valve always remains open to guarantee draining against the sewer backwater even in the event of backwater. In addition, a rat protection gate can be retrofitted.

d) **Aerating and ventilating the rainwater storage tank.** The KESSEL rainwater storage tank Aqabase® must be sufficiently aerated and ventilated to guarantee safe operation. One of the four possibilities 1 ... 4 (see illustration) must be realised. The pipe (nominal width ≥ DN 100) should be kept short, always be on the rise and sealed by an insect-proof aeration and ventilation stack. Aeration and ventilation must not be together with other installations.

e) **Insert the telescopic KESSEL attachment** piece into the opening of the rainwater storage tank and move to the required position. With the aid of the existing clamping ring it is now possible to fasten the attachment piece in the desired position (alignment with the top ground surface). The fine adjustment to the final height is then effected with the adjusting screws. A ground slope can be compensated for with the continuously height-adjustable and up to 5° inclinable attachment piece. The attachment piece must then be sufficiently backfilled and compacted.



Ill. shows 6000 l Tank

For larger installation depths, the special KESSEL adapter (part no. 917403), installation height 400 mm is to be used

f) Secure the rainwater storage tank cover against unauthorised opening

6. Installation / Service and Maintenance

The chapter "Safety instructions" must be heeded!

IInitial operation:
The rainwater storage tank may only be put into operation when the technical expert of the company that has been commissioned to carry out the installation has certified proper installation. Before the rainwater storage tank is put into operation, the rain collecting area, the trough, the downpipe, the drain, basic pipe, rainwater filter and outlet pipe must be cleaned of foreign matter and flushed. If an empty conduit has been laid between the rainwater storage tank and the building, suitable measures (e.g. empty conduit sealing) must be taken to ensure that no water can enter the building through the empty conduit. The backwater level must be taken into account. The additional components required for rainwater use should be installed and tested before initial operation

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Service and maintenance:
The KESSEL rainwater storage tank Aqabase® has to be checked every six months by the operator cleanness, airtightness, sturdiness and safety against unauthorised opening.
If necessary, the tank must be serviced by a specialist company. Normally, servicing is only required every 5 - 10 years.
During servicing, the following procedure should be followed:

- Empty the tank.
- Clean the inside walls of the tank, the built-in components, attachments and cover using a soft brush and water without cleaning agents.
- Empty the tank completely.
- Check the function of the built-in components (overflow siphon, inlet slowdown, floating switch etc.).
- Fill the rainwater storage tank up to about 30 cm with drinking water/service water.
- Secure the rainwater storage tank cover against unauthorised opening.

7. Warranty

1. In the case that a KESSEL product is defective, KESSEL has the option of repairing or replacing the product. If the product remains defective after the second attempt to repair or replace the product or it is economically unfeasible to repair or replace the product, the customer has the right to cancel the order / contract or reduce payment accordingly. KESSEL must be notified immediately in writing of defects in a product. In the case that the defect is not visible or difficult to detect, KESSEL must be notified immediately in writing of the defect as soon as it is discovered. If the product is repaired or replaced, the newly repaired or replaced product shall receive a new warranty identical to that which the original (defective) product was granted. The term defective product refers only to the product or part needing repair or replacement and not necessarily to the entire product or unit. KESSEL products are warranted for a period of 24 month. This warranty period begins on the day the product is shipped form KESSEL to its customer. The warranty only applies to newly manufactured products. Additional information can be found in section 377 of the HGB.

   In addition to the standard warranty, KESSEL offers an additional 20 year warranty on the polymer bodies of class I / II fuel separators, grease separators, inspection chambers, wastewater treatment systems and rainwater storage tanks. This additional warranty applies to the watertightness, usability and structural soundness of the product.
   A requirement of this additional warranty is that the product is properly installed and operated in accordance with the valid installation and user's manual as well as the corresponding norms / regulations.

2. Wear and tear on a product will not be considered a defect. Problems with products resulting from improper installation, handling or maintenance will also not be considered a defect.

   Note: Only the manufacturer may open sealed components or screw connections. Otherwise, the warranty may become null and void

01.06.2010

8. Accessories

Article	Ø	Order.-Nr.

KESSEL single flap backwater valve
Staufix® with emergency valve
made of plastic
Flap closes automatically
and there is an emergency valve that can be closed by hand.
Not for wastewater with sewage

DN 100 L: 355 H: 180 + 25 A x B: 205 x 155 mm
DN 125: L: 405 H: 240 + 40 A x B: 270 x 200 mm
DN 150: L: 450 H: 240 + 40 A x B: 270 x 200 mm
DN 200: L: 530 H: 278 + 50 A x B: 353 x 248 mm

With plastic flap	
Ø 100	**72 100**
Ø 125	**72 125**
Ø 150	**72 150**
Ø 200	**72 200**
With stainless steel flap (rat protection	
Ø 100	**72 100R**
Ø 125	**72 125R**
Ø 150	**72 150R**

KESSEL suction fine filter, floating **85 050**

for suctioning unfiltered rainwater from rainwater storage tanks, floating version with floating ball made of PE, with suction hose (3 m long; standard suction hose and connection) and hose fitting, filter body with filter made of stainless steel, mesh width 0.23 mm, all connections 1 inch, with backflow protection device.

- Guarantees suctioning of the cleanest water about 15 cm underneath the water surface.
- Protects the pump from suctioning in damaging particle sizes.
- Large flow possible thanks to high-quality non-return valve.

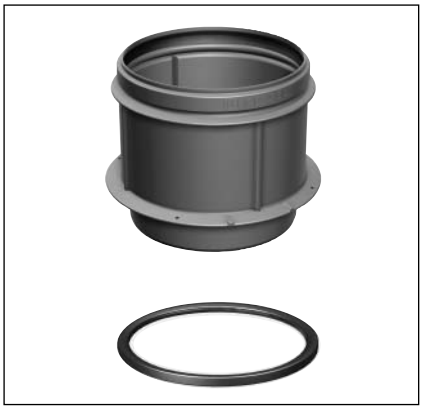
KESSEL suction coarse filter, floating **85 051**

for suctioning rainwater from rainwater storage tanks, floating version with floating ball made of PE, with suction hose (3m long; standard suction hose and connection) and hose fitting, filter body with filter made of stainless steel, mesh width 1,2 mm, all connections 1 inch, with backflow protection device.

- Guarantees suctioning of the cleanest water about 15 cm underneath the water surface.
- Large flow possible thanks to high-quality non-return valve.

8. Accessories

Article	Ø	Order.-Nr.



KESSEL polyethylene adapter

Suitable for all KESSEL *Aqabase®* rainwater storage tanks

Extension height = 510 mm	**917 406**
Extension height = 1010 mm	**917 407**

KESSEL lip seal DN 600	**860 116**

KESSEL cover plate made of plastic	**860 122**

For custoamry concrete rings/BEGU-Covers.
telescopic adjustable from 40 to 300 mm.

KESSEL lip seal DN 600	**860 116**

KESSEL cover plate made of GG	**860 133**

Class B, lockable. Can be driven on by cars up to 12.5 t.

KESSEL plastic attachment piece	**860 121**

With clamping ring, telescopic height adjustment from 100 to 600 mm, for cover Class A/B/D, lockable

KESSEL lip seal DN 600	**860 116**

Art. Nr. 85 412

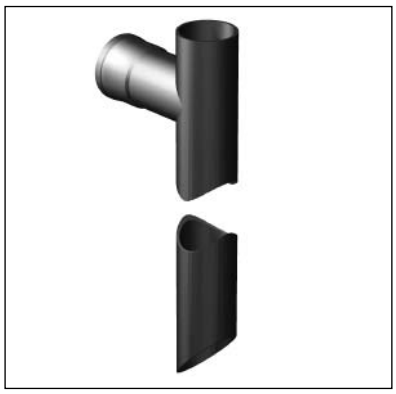
KESSEL-empty conduit seal DN 150 made of plastic	**85 412**

With two seals each DN 32/DN40, one seal DN 50 and one blind plug each DN 40 and DN 50.

Suitable for KESSEL rainwater pumping systems *Aqabull ®/Aqadive®* and rainwater filters with/without back-flushing unit

8. Accessories

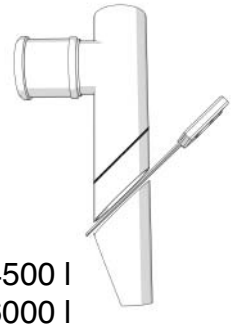
Article	Ø	Order.-Nr.



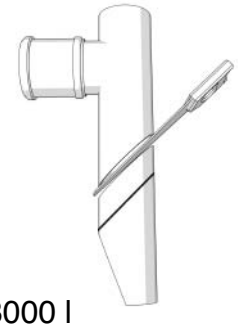
KESSEL-inlet slowdown **Ø 100** **85 418**
made of polyethylene Ø 100

with branch Ø 100/90°.
To slow down the rainwater flow into the rainwater storage tank.

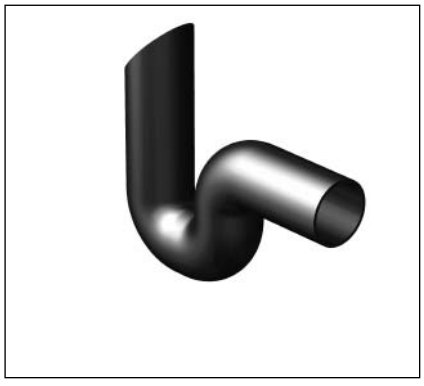
9000 l ✔



4500 l
6000 l

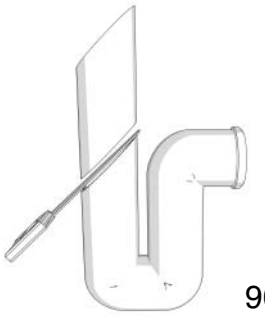


3000 l



KESSEL-overflow siphon **Ø 100** **85 419**
made of polyethylene Ø 100.

For optimum removal of floating material.



9000 l ✔

3000 l
4500 l
6000 l

8. Accessories

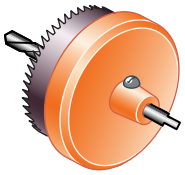
Article	Ø	Order.-Nr.

Art. Nr. 85 073

KESSEL-stickers “Not drinking water” **85 073**
for marking the pipes as non-drinking water pipes.
L x B: 26 x 80 mm
5 pcc/box

KESSEL-sign “Not drinking water”
for marking the tapping points, L x W: 60 x 120 mm
2 pcc/box

KESSEL-sign “No cross-connection to the drinking water network (heed DIN 1988)”
for attachment near the water meter, L x W: 105 x 148 mm
1 pc/box



KESSEL-saw cap **50 100**

For scoring the openings for pipe duct seals.
DN 50, 70, 100, 125, 150

Seal for pipe duct

Ø 50	**850114**
Ø 70	**850116**
Ø 100	**850117**
Ø 125	**850118**
Ø 150	**850119**

KESSEL-submersion pump KTP 300

10 m cable without floating switch made of PP	**R1**	**28 740**
with backwater flap, **10 m cable with floating switch,** connection can be pivoted	**R1**	**28 840**

Motor capacity P_1 = 300 W
Operating voltage: 230 V ~ 50 Hz, max. pumping height: 6,5 m
max. pumping capacity:8,7 m³/h, max. submersion depth: 10 m
Pressure connection: R 1 side/vertical
Suction cage can be removed - reduction of the water level to 8 mm possible.

- Mobile or stationary use.
- No tilting, no lurching.
- Can be submersed completely

CE

KESSEL

EU-KONFORMITÄTSERKLÄRUNG
EC declaration of conformity/ Déclaration CE de conformité

Nach der Maschinenrichtlinie 98/37/EG, der Niederspannungsrichtlinie 73/23/EWG, Richtlinie der elektromagnetischen Verträglichkeit 89/336/EWG und Richtlinie für Druckgeräte 97/23/CEE./
According to the Machine Guidelines 98/37/EC, the Low Voltage Guidelines 73/23/EEC, Electromagnetism Guidelines 89/336/EEC and the Pressure System Guidelines 97/23/CEE./
Selon les directives mécaniques 98/37/EG, les directives de basse tension 73/23 EWG, les directives pour la compatibilité électromagnétique 89/336EWG et les directives pour appareil à pression 97/23/CEE

KESSEL AG
Bahnhofstraße 31
D-85101 Lenting

erklären wir, / we declare, / nous déclarons,

dass das Produkt/ that the product/ que le produit

KESSEL- Regenwasserspeicher Aqabase®

KESSEL Rainwater storage tank Aqabase®

Citerne de récupération d l´eau de pluie Aqabase®

den folgenden Normen entspricht:/ is in agreement with:/ est en accord avec:

DIN 1986-100
DIN 1988-4
EN 1717
EN 12056
EN 476
EN 752-2,3

Zur Kennzeichnung der Übereinstimmung der Produkte ist auf dem Typenschild das Zeichen der Richtlinie 93/68/EWG angebracht./ The 93/68/EEC code mark should be located on the ID plate on the product./ Le marquage et l´indentification du produit figurent sur la plaquette d´identification selon les directives 93/68 EWG.

Lenting, den 4.12.2009

A. Kessel
Vorstand
Managing Board
Conseil d´administration

E. Thiemt
Vorstand
Managing Board
Conseil d´administration

Important contacts / Info

Separator Type: _____

Day / Hour _____

Project description / Building services

supervisor _____

Address _____

Telephone / Fax _____

Builder _____

Address _____

Telephone / Fax _____

Planner _____

Address _____

Telephone / Fax _____

Contracted plumbing company _____

Address _____

Telephone / Fax _____

Commissioning no. KESSEL

System operator / owner _____

Address _____

Telephone / Fax _____

Other remarks _____

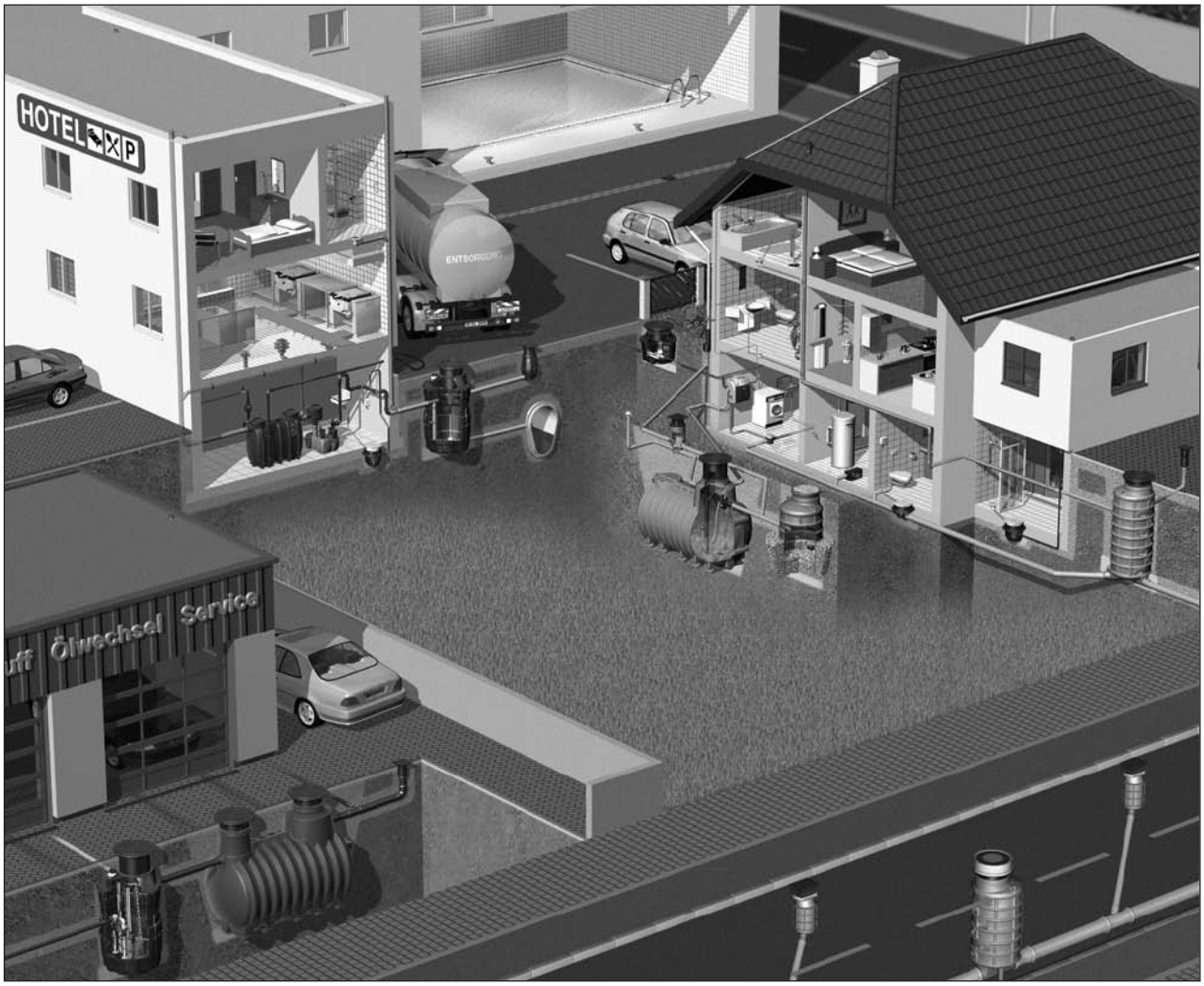
_____

_____

_____

The system operator, and those responsible, were present during the commissioning of this system.

_____	_____	_____
Place and Date	Signature Builder	Unterschrift Anlagenbetreiber



- ❑ Backwater protection
- ❑ Lifting Stations and pumps
- ❑ Drains and shower channels
- ❑ Separators
  - -Grease Separators
  - -Oil-/Fuel-/Coalescence Separators
  - -Starch Separators
  - -Sediment Separators
- ❑ Septic Systems
- ❑ Inspection Chambers
- ❑ Rainwater Management Systems

KESSEL