

Energy Systems

Heating oil tanks

Experience and competence for
your safety



Living full of energy

Oil heating is still an economical and environmentally friendly heating technology – it is good value and unmatched in terms of safety. The complete heating system also includes the economical, space-saving and unproblematic storage of the fuel.





A future with oil

Oil with a future

■ A constant in modernisation and new buildings

Is oil heating an outdated system? Quite the contrary. The new condensing heating systems in combination with solar reduce oil consumption by up to 40 % (according to IWO).

The advantages to you at a glance

- > very efficient
- > low consumption (ideal partner for renewable energies)
- > conserves resources
- > good for your purse
- > lower emissions = climate protection

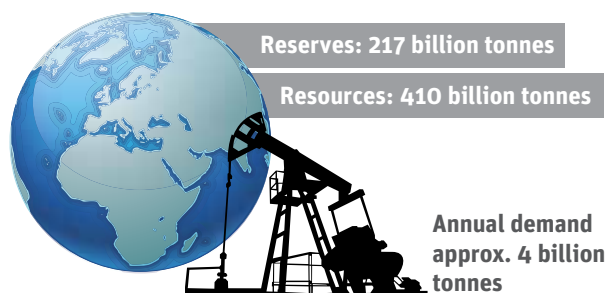
■ Oil will last for at least the next 100 years

The oil and the oil tank

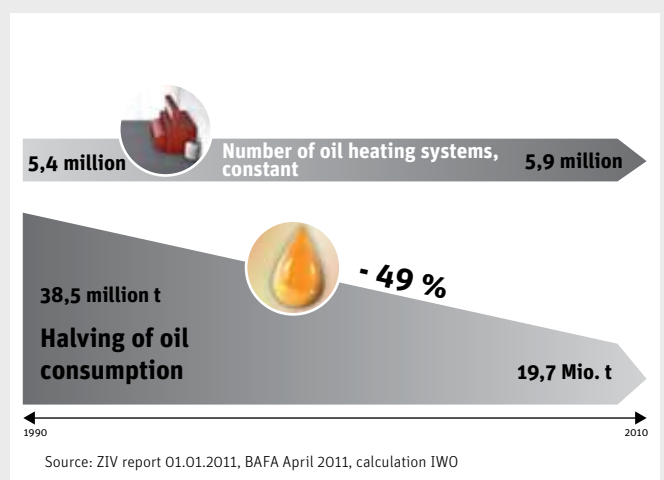
- > heat store (long-term energy store)
- > liquid fuels have good storage characteristics
- > no subscription fee as for grid-based energy sources
- > almost 100 % energy utilisation

**Oil tank (Roth) + buffer storage tank (Roth)
+ condensing boiler =
optimal heating system**

Worldwide oil reserves



Source: BGR energy study, 2011 version



Development – Manufacture – System

all from one source



■ The Roth philosophy for heating oil storage prevails: long-term safety is the priority!

In 1971, Roth invented the double-walled plastic tank with a steel outer casing. Since that time, the Roth steel/PE tank has proved itself 100 000 times over. Derived from the so-called "domestic tank", two-walled solutions in steel/plastic and plastic/plastic design for oil central heating have now established themselves on the market.

Single-walled plastic tanks, which require secondary protection to be created on site, are increasingly being phased out. As European market leader, Roth offers a range of heating oil tanks for all practical applications.

Modernisation of heating system + building heat insulation – save up to 70 % of energy costs

- > independent
- > sustainable
- > efficient

A proven heating system based upon new technology to supply tomorrow's heating needs

Combination with solar – oil is the ideal partner

- > economical
- > flexible
- > conserves resources
- > complete hot water supply in summer
- > covers up to 60 % of the annual hot water demand
- > switch off boiler in summer

Roth heating oil tanks

quality proven over decades



■ Roth heating oil tanks – unbeatable quality products

- › They are made of high-quality polyethylene (PE-HD) which has proved its worth over decades of use. In the case of the DWT they also have an integral collecting trough made of sheet steel that is fully galvanised inside and out with a high-quality polymer seal.
- › They guarantee protection against diffusion: DWT plus 3: emissions-free metal encapsulation – guarantees complete protection against diffusion. Plastic tanks (single- or double-walled): CoEx-PA-Blend® procedure* manufactured according to the state of the art by material upgrading.
- › The opaque metal encapsulation in the DWT guarantees better stability for the storage of heating oil with biogenic components.
- › Easy-to-install accessories save time during installation.
- › Thanks to the special construction and compact design according to the latest safety standards, all Roth heating oil tanks have optimal sturdiness and inherent stability even without straps.
- › Special production techniques with precision control of the wall thickness, inspection of the construction type and authorisation by independent institutions together with TÜV-monitored production and perfect quality control ensure a constant and top level of product quality and thus maximum operational safety.
- › The Roth range of heating oil tanks with product-related size variants offers the right tank for every need. The range makes it possible to store up to 5000 litres of heating oil in areas that also house a heat source (fireplaces). Quantities of heating oil exceeding these amounts must be stored in special heating oil storage rooms.
- › With the Roth heating oil tanks, up to 25 000 litres of heating oil can be stored in block configurations (latest version of Allgemeine bauaufsichtliche Zulassung, National Technical Approval in January 2013).

■ Guarantee

- › All Roth heating oil tanks are issued with the comprehensive "system guarantee" for storage tanks including coverage for consequential damage.
- › Roth heating oil tanks – a safe solution for all situations: in detached houses or multiple dwelling units, in apartment blocks or business premises, in new buildings, extensions or renovations.

* TÜV-tested diffusion protection

Roth DWT plus 3 makes room for innovation

simple, clean and space saving!



State-of-the-art tank assembly with Roth DWT plus 3 and Roth KWT:
all steps in a single process!



> no bricking



> no oil-proof coating



> no separate room

Roth DWT plus 3 and Roth KWT for the storage of up to 5000 litres may be installed in the boiler room.



■ Room for more

The compact tank system from Roth gives you space for something new.

With low oil consumption thanks to efficient calorific value technology, the systems are economical and have small dimensions. Systems with a capacity of up to 5000 litres can be installed in a boiler room. This makes additional space for storage, hobbies and comfort.



Roth DWT plus 3

with attractive combined protection

"Full speed ahead!" is Roth's battle cry as it meets the future fully equipped to deal with the needs of alternative fuels.



Roth DWT plus 3 1500 l, 1000 l and 750 l

■ Attractive combined protection with full galvanisation and high-quality polymer sealing

Dirty surfaces not only give an unattractive impression, they can sometimes even adversely affect operation. Combined protection consisting of durable full galvanisation and a high-quality polymer coating seals the premium Roth DWT plus 3 tank in order to prevent dirt and fingerprints from sticking (anti-fingerprint effect).

Even if the original Roth DWT plus 3 gains points first and foremost due to its unparalleled plus 3 quality features for the highest levels of safety and living quality, design is becoming an ever more important sales criterion due to the increasing use of basement rooms for other purposes. The new polymer sealing gives the original Roth DWT plus 3 a modern metallic design. It fits in well with modern boilers and is an attractive eye-catcher in any installation situation.

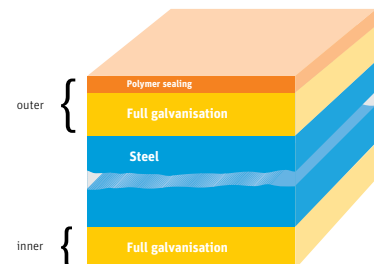
■ Roth DWT plus 3 is ready for the future

Roth makes high demands of itself in terms of the future use of renewable raw materials for heating purposes. Biogenic liquids are a natural product and have a significantly lower storage stability compared to mineral heating oil. They can be affected in particular by light, temperature and air exchange. The opaque and diffusion-proof outer shells of the Roth DWT plus 3 make it particularly well suited for the storage of heating oil with biogenic components.

For this application, Roth offers the Füllstar® plastic filling system, which has proven its worth many times over. Even in its standard design (from 2012) this can be used for:

- > Heating oil according to DIN SPEC 51603-6 EL A Bio 5 - Bio 15 with a maximum biogenic component of 15,9 % in single tanks and tank systems
- > Heating oil according to DIN SPEC 51603-6 EL A Bio >15 with a biogenic component of more than 15,9 % in single tanks
- > FAME according to DIN EN 14214 in single tanks

■ Premium tank Roth DWT plus 3 with surface sealing for greater safety and durably attractive appearance.



Roth DWT plus 3

metal/plastic – the proven composite solution



Roth anchoring system

■ The plus 3 double-walled tank for maximum safety and quality of living

The DWT plus 3 is tightly sealed using Roth's steel meltpress process. A leak probe enables the tank interspace to be monitored for safety. Being completely contained within leak-monitored metal, the DWT plus 3 truly is double-walled all around. The PE inner tank and the steel outer tank, which is tightly sealed all around, are tightly and firmly joined in the vicinity of the tank connection. TÜV has certified the quality of the DWT plus 3, which is based on the steel meltpress process. The unique quality features of the DWT plus 3 offer maximum safety and enhance the home environment:

➤ Fire-proof

Successful 90-minute fire test at the Institute for Material Testing (Materialprüfanstalt (MPA)), Dortmund thanks to steel encapsulation. The Roth DWT plus 3 thus offers 3 times as much safety time as tanks made purely of plastic.

➤ Opacity and diffusion resistance

Thanks to its material properties, only steel permits absolute opacity and diffusion resistance and is therefore particularly suitable for the storage of both standard heating oils and heating oils with biogenic components.

➤ Flood-protected

The solid steel construction of the Roth DWT plus 3 with its robust steel outer tank, tightly sealed all round, also guarantees that it can be used safely in areas where there is a danger of flooding.

Roth rounds off the plus 3 quality features with a 15-year product guarantee* thanks to many years of experience with this tank type.

■ Flood protection

In conjunction with the Roth anchoring system, the Roth DWT plus 3 is securely anchored to the floor against buoyancy by means of 4 clamping bands.

The anchoring system is simple to retrofit to existing DWT plus 3 tank systems (Allgemeine bauaufsichtliche Zulassung, National Technical Approval Z-40.21-364).

This means the DWT plus 3 provides an economical solution for use in areas subject to flooding as no constructive reinforcements of the tanks are required. The accessory is designed for tanks with 750 l and 1000 l rated contents in row configurations with up to a maximum of 5 tanks as well as for simple L-shaped installations with up to 7 tanks.



* see guarantee conditions

Roth DWT plus 3 750 l

our renovation specialist

For renovation decisions, 80 per cent of the height of the cellar is the determining factor.

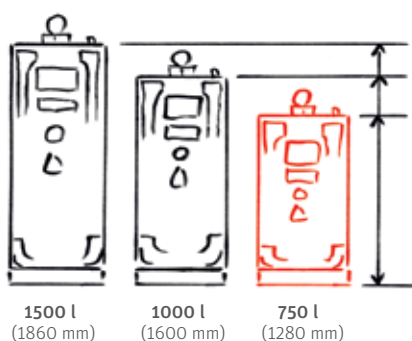
With the new DWT plus 3 750 l, it is no longer an issue.



The average height of a 750 l tank corresponds to 1626 mm plus filling pipes and thus causes handling and installation problems in many older cellars.

■ DWT plus 3 750 l – minimal height, maximum benefits

Roth is now offering the extremely low-rise DWT plus 3 750 l. It is perfect for renovation projects involving basements with low ceilings. Compared to the rest of the "family", it reduces the tank height by around a quarter. With its slimline design, the DWT plus 3 fits through narrow doorways and into small rooms with ease. Thanks to its dimensions, the new DWT plus 3 750 l is especially suitable for renovation projects.



DWT plus 3 – an ideal tank for both renovation and new-build projects

- › its narrow design and low height – along with the separately supplied base frame – permit optimal integration.
- › the need for bricking is dispensed with thanks to its double-walled design (space saving).
- › the modern metallic look means that the Original Roth DWT plus 3 really catches the eye. It makes your storage room attractive for other uses.

Roth DWT plus 3

all-round safety



■ **DWT plus 3 – the quality tank with the quality transport protection**

- **Styropor cover**
Perfect protection of the leak probe and level gauge
- **Pallet with all-round buffers**
Optimum safety during delivery
- **Film hood**
Ideal protection of the top area from dirt and moisture



Roth DWT plus 3

at a glance



1

Füllstar® System

- > the few parts are installed without tools apart from the installer's own hands.


2

Fire safety

- > fire safety according to the 90-minute standard fire test at the MPA, Dortmund. 3 times the safety time of the standard fire test.


3

Diffusion protection

- > permanent odour absorption by metal encapsulation that is tightly sealed all round. Thanks to its material properties, steel permits absolute diffusion protection.


4

Suitability of "Bio" heating oil

- > particularly suitable for the storage of standard heating oils and heating oils with biogenic components.


5

Corrosion protection

- > beading protects the material and the steel-meltpress procedure and full galvanisation with high-quality polymer sealing guarantee long-term corrosion protection that has proven itself over decades of practical use.


6

Easy handling

- > can easily be carried and fitted by 2 people. Installation is made easier by handles on the back, and by the separately supplied base frame.



Roth KWT

the quality tank in standard design



Roth KWT: 750 I-C, 1000 I-R, 1000 I-C, 1500 I-R



Roth KWT: Row configuration 3 × 1000 I-C

■ Roth KWT

The double-walled Roth KWT is made entirely of plastic with a polyethylene inner tank and a polyethylene tray.

The edge of the tray connects directly to the tank on the inside, creating a single functional tank unit.

The compact design gives the Roth KWT extremely high strength without straps or beads. Smooth walls with a band-shaped bulge in the top part give it an unmistakably modern design.

The diffusion layer is achieved by material upgrading for all single- and double-walled polyethylene tanks. Polyamide blend is deposited using the TÜV-tested Roth 'CoEx-PA-Blend'® procedure, similar to the Selar procedure. It reflects the state of the art.

The Roth KWT has passed the 30-minute standard fire test at the MPA, Dortmund. Roth offers a 15-year product system guarantee for the quality tank.*

*see guarantee conditions



Edge of the tray connects directly to the tank

Roth KWT 1000 I-R

the renovation tank amongst the double-walled plastic tanks

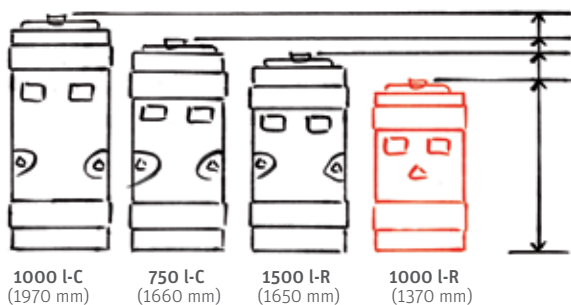
Low height, enormous advantage!
Space-saving heating oil storage
with Roth

NEW

■ Roth KWT 1000 I-R

It's narrow, it's light, it has a low height.
The new KWT 1000 I-R perfectly fulfils the
conditions for renovation in basements with
low ceiling heights and where space is tight.

All KWTs are licensed for the storage of
heating oil EL A Bio 5 to 15. These biogenic
mixtures can be stored in the Roth KWTs in
row and block configuration.



KWT 1000 I-R – an ideal tank for renovation and new buildings

- > easy handling thanks to low, narrow design.
- > double-walled design dispenses with the need for bricking and oil-proof coating.

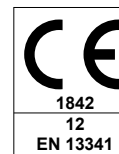
Roth heating oil tanks

General overview



Roth DWT plus 3 (double-walled tank)

	Length *	Width *	Height *	Weight M0	Weight M1	Storage permit
750 l	1100 (1145) mm	700 (740) mm	1280 (1460) mm	65 kg	82 kg	Z-40.21-161
1000 l	1100 (1145) mm	700 (740) mm	1600 (1780) mm	79 kg	97 kg	Z-40.21-161
1500 l	1630 (1680) mm	760 (800) mm	1860 (2030) mm	133 kg	160 kg	Z-40.21-283



* Height on base frame to top of screw connection. Dimensions in brackets include packaging.

For installation in the room in which it is to be positioned deduct 90 mm for the separate base frame. Add 210 mm for the lines, safety valve and LVE. See page 22 for detailed dimensions and installation variants.

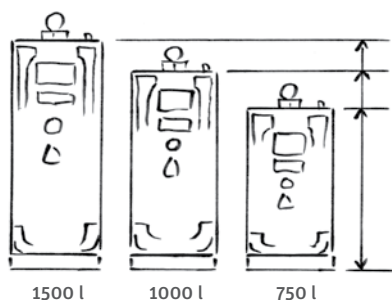
Weight M0 = without packaging, without base frame, weight M1 = complete with packaging and base frame

■ Stored liquids for Roth heating oil tanks

- › heating oil EL in accordance with DIN 51603-1
- › diesel fuel in accordance with DIN EN 590
- › heating oil EL A (BIO) Bio 5 – Bio 15 in accordance with DIN SPEC 51603-6

■ Approved for individual tanks

- › lubricating oils, hydraulic oils, heat transfer oils Q, alloyed or unalloyed with flash point over 55 °C
- › biodiesel (FAME) in accordance with DIN EN 14214
- › lubricating oils, hydraulic oils, heat transfer oils Q, used oils, flash point over 55 °C; origin and flash point must be verifiable by the operator*
- › vegetable oils such as cottonseed, olive, rapeseed, castor or wheat germ oil in any concentration, that are not used as a foodstuff or for the manufacture of foodstuffs



* If these substances are stored in a DWT plus 3 the leak probe fitted as standard (visual display) should be replaced by another suitable sensor. Where water legislation (water hazard class 3) dictates, it should be replaced by an optical and acoustic leakage warning device. An optical and acoustic leakage warning device can also be necessary for the other substances if the tank is installed in protected areas.

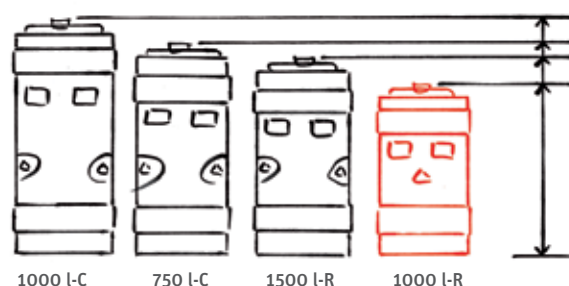


Roth KWT (plastic tray tank)					
	Length	Width	Height *	Weight	Storage permit
750 l-C	770 mm	760 mm	1660 mm	47 kg	Z-40.21-319
1000 l-C	820 mm	820 mm	1970 mm	54 kg	Z-40.21-319
1500 l-R	1660 mm	760 mm	1650 mm	88 kg	Z-40.21-319
1000 l-R	1430 mm	745 mm	1370 mm	58 kg	Applied for – new, provisionally from April 2013

* Height to top edge of connections
Add 210 mm for the lines, safety valve and LVE.
See page 24 for detailed dimensions and installation variants.

■ **The following are also approved for the Roth KWT**

- > ethylene glycol (CH_2OH) as radiator anti-freeze
- > photochemicals, commercially available in usage concentration (new and used) with a density of max. $1,15 \text{ g/cm}^3$ (maximum fill level 80 %)
- > ammonia water (solution) NH_4OH , up to saturated solution
- > pure urea solution 32,5 % as NO_x reducing agent (AdBlue) with a density of max. $1,15 \text{ g/cm}^3$ (maximum fill level 80 %)



Also in the range:

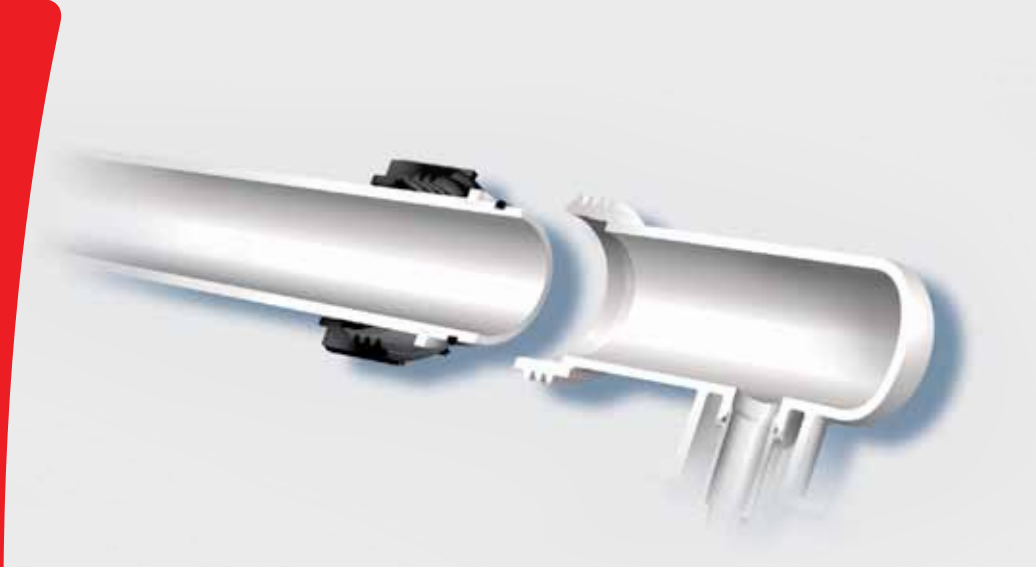
Roth Compact Tanks, single-walled 750, 1000 l and Roth battery tanks, single-walled, 1500 and 2000 l.

Roth Füllstar®

securely fitted in the blink of an eye

Advantages at a glance

- > flexible use
- > easy and safe installation
- > appropriate height adjustment



■ **Füllstar® – one system for row, block and angle installation**
Roth DWT plus 3 750/1000/1500 l
Roth KWT 750/1000 l-C
Roth KWT 1000 */ 1500 l -R

Even in times of technical progress there are times when it is worth using our hands. Hands are a reliable tool that you can depend upon. We have developed a filling system for our Roth heating oil tank based upon this tool: the Roth Füllstar®. The few parts are installed without tools apart from the installer's own hands. The Füllstar® pipe can be fitted together quickly and securely tightened using the union nut with the seal and clamping ring that are prefitted in the factory. The high-quality plastic material (PE-HD) guarantees reliable long-term safety. Precise injection nozzles ensure that the tank is filled evenly. The Roth Füllstar® significantly reduces the already-short installation times for the Roth heating oil tank.

NEW: Even the standard accessories are now suitable for heating oil with biogenic components $\leq 15,9\%$ (heating oil EL A Bio 5 to Bio 15 in accordance with DIN SPEC 51603-6). High-quality materials guarantee reliability and long service life in combination with the most common biogenic fuels of the future.

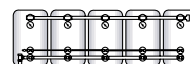
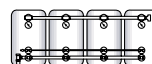
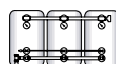
The Roth Füllstar® filling system is supplied with the non-communicative single-line system as standard for the tank types DWT and KWT!

The design of the suction hose with spacer spider deserves particular mention. This guarantees that any sediment that has collected on the floor of older tank systems is not sucked up and therefore does not cause faults in the heating system (e.g. premature filter blockages).





- **Reliable filling in block and angle configuration for**
Roth KWT 750/1000 l-C
Roth DWT plus 3 750/1000 l



- **Reliable quick-filling system in row configuration for**
Roth DWT plus 3 750/1000/1500 l
Roth KWT 1000/1500 l-R

Roth DWT plus 3 750/1000/1500 l and KWT 1000/1500 l-R are approved for up to 5 tanks in row configuration. The Roth Füllstar® row accessories with a nozzle diameter of 12 mm lend themselves to this. This significantly reduces filling times.

Roth Füllstar®

flexibly systematic

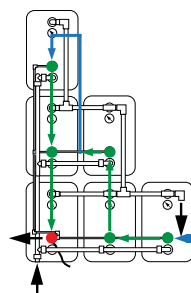
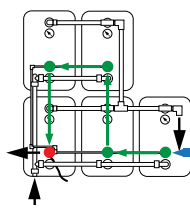
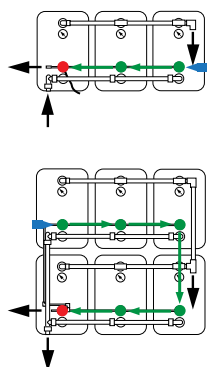


■ Roth overfill safety system, TYPE F-Stop LVE-LS, for maximum safety against overfilling, for tank systems of up to 11 tanks *

According to the previous state of the art, plastic battery tank systems with a limit value encoder LVE are fitted in the first tank. For the Roth F stop LVE-LS overfill safety system, in addition to the LVE in the 1st tank, a tank system level limiter LVE is fitted in the following tanks, preventing the possibility of overfilling. LVE and LS are electrically connected in the form of a safety chain.

The system is made up of a "basic kit", only one of which is required per tank system. For each subsequent tank an "extension kit" is required. The basic kit and the extension kit are connected together by a bus cable. A terminal plug, which is supplied with the basic kit, connects the safety chain to the extension kit of the last tank in a tank system.

■ Installation examples for F-Stop LVE-LS



- **Basic kit**
(connection unit I)
- **Extension kit**
(connection unit II)
with bus cable and level sensor
- ▶ **Terminal plug**
- **Extension cable (2,60 m)**
for angle configuration

■ Advantages of the system

- > flexible use for tank systems of up to 11 tanks in row, block and angle configuration (1 × LVE, 10 × LS).
- > the system works without an additional power source and is compatible with the electricity interface of the LVE tanker control.
- > easy and safe installation thanks to bus system
- > sensors can be fitted into and removed from the tank panel of the extraction fitting from above without removing the extraction system.
- > as for the LVE, the height adjustment of the LS is suitable for every tank design.
- > fault display red on each extension unit, making quick and simple fault-finding possible.
- > the system is compatible with the extraction system for Roth tanks of types DWT and KWT.
- > tank systems with Füllstar from year of manufacture 1998 can be retro-fitted (older tanks upon request).

* in preparation for changing installation regulations in the future (see drafts DWA-A 791-1 and AwSV)

■ Basic kit with termination plug



■ Extension kit with bus cable and level sensor (LS)

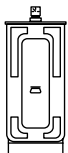


- ① Basic kit
- ② Limit value encoder (LVE) in 1st tank
- ③ Bus cable from extension kit
- ④ Extension kit with level sensor (LS)
- ⑤ Terminal plug from basic kit

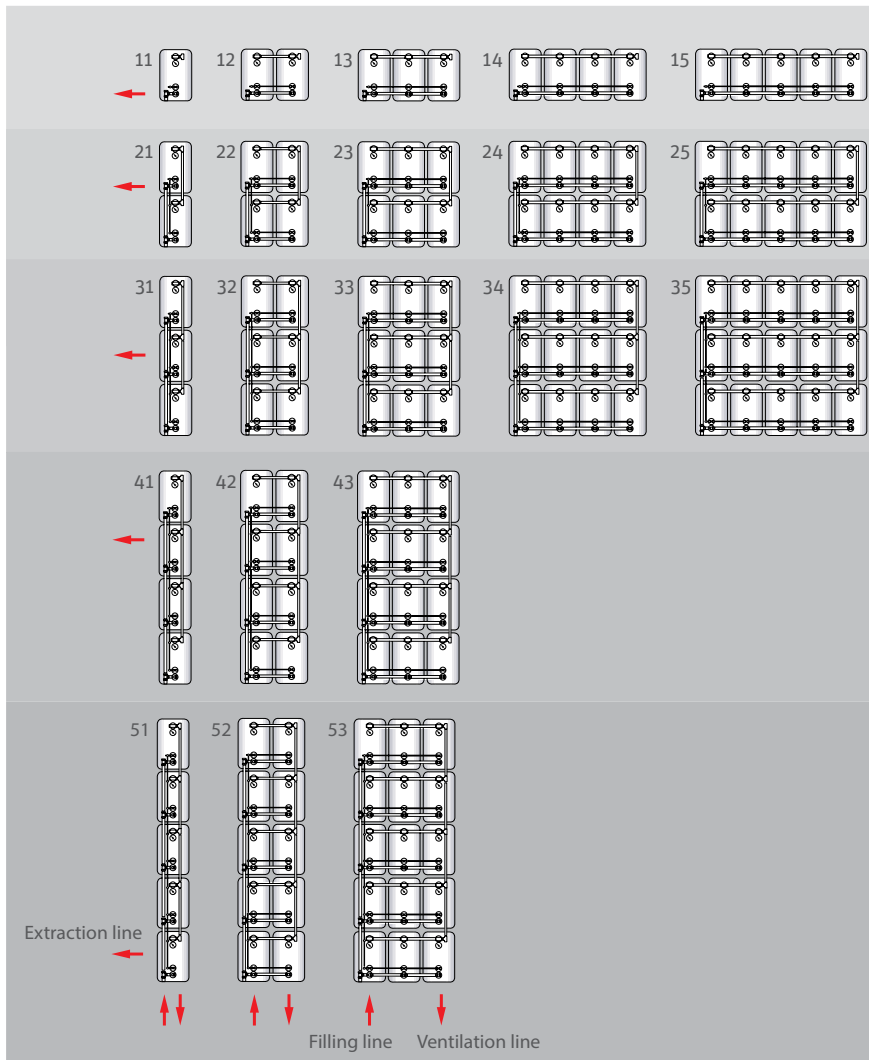
Roth DWT plus 3

row and block configuration

■ Roth DWT plus 3 750, 1000, 1500 l



The lining of the tank connections can, if necessary, be adapted to suit the circumstances.



■ Configuration regulations for DWT plus 3, KWT *

Reduced wall clearance regulations apply to configuration variants 11 to 15 of the Roth DWT plus 3 and Roth KWT and configuration variants 21, 31, 41, and 51 of the DWT:
A minimum clearance of 50 mm on three sides and a minimum clearance of 400 mm on one longitudinal side apply to the configuration of the Roth DWT plus 3 and Roth KWT in a row with up to 5 tanks.

For all other configuration variants, the following applies:

Tanks/tank batteries must have a wall clearance of at least 400 mm (to allow persons to pass through) on one front side and on one of the adjacent longitudinal sides and 50 mm on each of the other two sides (so that the spaces between the tanks can be inspected), as long as no more than three rows of tanks are placed with either the front side or longitudinal side next to one another in the block of a configuration.

The room dimensions given in the table for DWTs have been calculated accordingly.

Roth heating oil tank configurations are set up in accordance with the assembly instructions. If the configuration has several rows, the clearance from the top surface of the tank to the ceiling must be at least 600 mm. If the configuration has two rows, this requirement no longer applies if there is a wall clearance of 400 mm on both longitudinal sides and one front side of the tank. The clearance above the top of the tank to the ceiling is required for access for assembly and maintenance. There is no regulation regarding the clearance above the top of the tank to the ceiling for single-row configurations; however, there should be enough space available for the limit value encoder and the pipeline assembly (minimum 210 mm from the top edge of the connections).

* Attention: In future, new installation regulations will apply (see drafts DWA-A 791-1 and AwSV)

Configura- tion variant	Nominal capacity in l		Block dimensions length × width in mm		Room dimensions length × width in mm / min.		Accessories *
	750 / 1000 l	1500 l	750 / 1000 l	1500 l	750 / 1000 l	1500 l	
11	750 / 1000	1500	1100 × 700	1630 × 760	1550 × 800 (1200 × 1150)	2080 × 860 (1730 × 1210)	1 GR
12	1500 / 2000	3000	1100 × 1480	1630 × 1540	1550 × 1580	2080 × 1640	1 GR, 1 RR
13	2250 / 3000	4500	1100 × 2260	1630 × 2320	1550 × 2360	2080 × 2420	1 GR, 2 RR
14	3000 / 4000	6000	1100 × 3040	1630 × 3100	1550 × 3140	2080 × 3200	1 GR, 3 RR
15	3750 / 5000	7500	1100 × 3820	1630 × 3880	1550 × 3920	2080 × 3980	1 GR, 4 RR
11	750 / 1000		1100 × 700		1550 × 800 (1200 × 1150)		1 G
12	1500 / 2000		1100 × 1480		1550 × 1580		1 G, 1 R
13	2250 / 3000		1100 × 2260		1550 × 2360		1 G, 2 R
14	3000 / 4000		1100 × 3040		1550 × 3140		1 G, 3 R
15	3750 / 5000		1100 × 3820		1550 × 3920		1 G, 4 R
21	1500 / 2000		2250 × 700		2250 × 1150		1 G, 1 B
22	3000 / 4000		2250 × 1480		2700 × 1930		1 G, 2 R, 1 B
23	4500 / 6000		2250 × 2260		2700 × 2710		1 G, 4 R, 1 B
24	6000 / 8000		2250 × 3040		2700 × 3490		1 G, 6 R, 1 B
25	7500 / 10000		2250 × 3820		2700 × 4270		1 G, 8 R, 1 B
31	2250 / 3000		3400 × 700		3500 × 1150		1 G, 2 B
32	4500 / 6000		3400 × 1480		3850 × 1930		1 G, 3 R, 2 B
33	6750 / 9000		3400 × 2260		3850 × 2710		1 G, 6 R, 2 B
34	9000 / 12000		3400 × 3040		3850 × 3840		1 G, 9 R, 2 B
35	11250 / 15000		3400 × 3820		3850 × 4620		1 G, 12 R, 2 B
41	3000 / 4000		4550 × 700		4650 × 1150		1 G, 3 B
42	6000 / 8000		4550 × 1480		5000 × 1930		1 G, 4 R, 3 B
43	9000 / 12000		4550 × 2260		5000 × 2710		1 G, 8 R, 3 B
51	3750 / 5000		5700 × 700		5800 × 1150		1 G, 4 B
52	7500 / 10000		5700 × 1480		6150 × 1930		1 G, 5 R, 4 B
53	11250 / 15000		5700 × 2260		6150 × 2710		1 G, 10 R, 4B

* Füllstar quick-filling system (12 mm nozzle),
for up to 5 tanks in row configuration:
GR – base unit, RR – row extension

Füllstar universal filling system (6 mm nozzle), for row,
block and angle configuration:
G – basic unit, R – extension row,
B – extension block.
1 extension angle bracket L is required for each angle
section in the angle configuration.

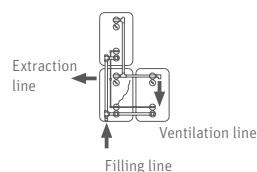
Subject to technical modifications.

Roth DWT plus 3 with Füllstar® Pipe System

Angle configuration – 1 stage*

Required accessories:

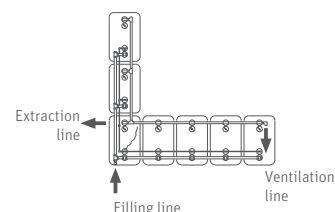
- 1 × base unit G
- 1 × extension row R
- 1 × extension block B
- 1 × extension angle L



Angle configuration – 1 stage*

Required accessories:

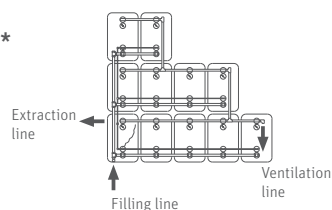
- 1 × base unit G
- 4 × extension row R
- 2 × extension block B
- 1 × extension angle L



Angle configuration – 2 stage*

Required accessories:

- 1 × base unit G
- 8 × extension row R
- 2 × extension block B
- 2 × extension angle L



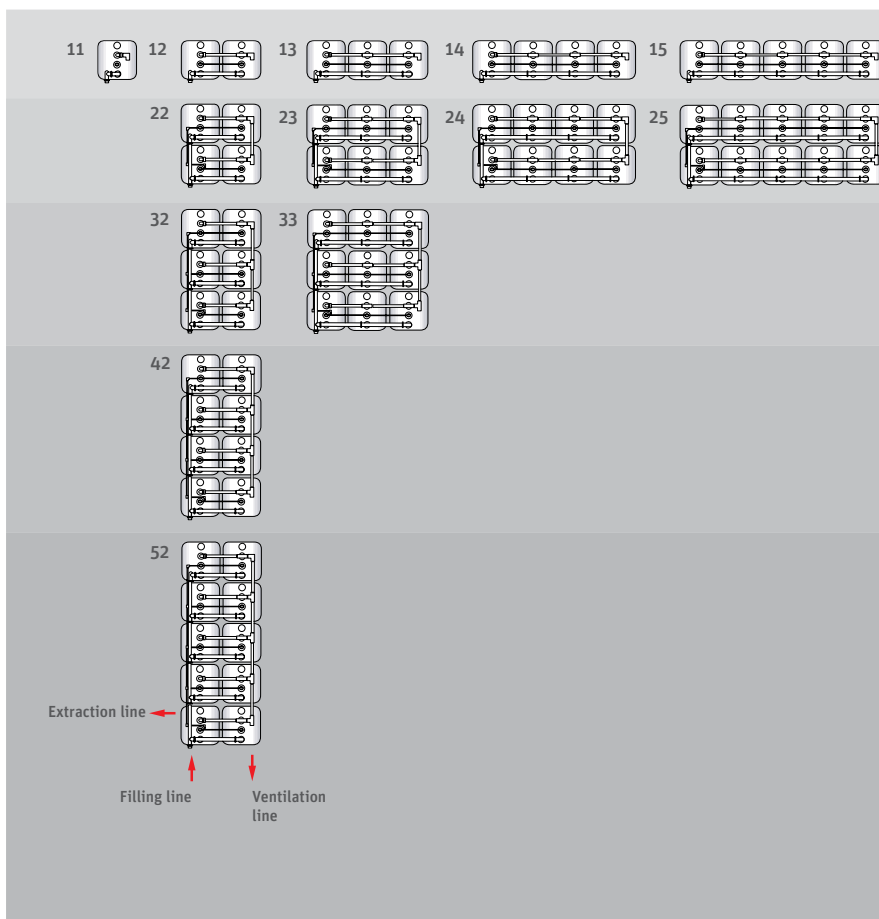
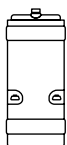
* see also information on page 24 for angle configuration DWT plus 3 variants

Roth KWT

row and block configuration

■ Roth KWT

750 I-C, 1000 I-C, 1000 I-R, 1500 I-R



■ The advantages of the angle configuration system

In difficult and unusual room situations Roth heating oil tanks can be installed in an angle configuration (DWT plus 3 up to 3 rows). With the appropriate package of accessories – angle L extension – this can be achieved quickly and safely.

The number of accessory packs is determined and the fitting of the filling and drainage systems performed in the same way as for the block configuration.

A basic angle configuration for the Roth DWT plus 3, KWT 750 I-C and 1000 I-C relates exclusively to the ventilation system for the accessories. A prerequisite is that the tanks are filled from the T-manifold, with the liquid then passing

into the row filling pipe of the first tank of the longest row of the angle configuration. The number of tanks in the back rows must not exceed the number of tanks in the front rows. Furthermore, the wall and ceiling clearance rule for the block configuration still applies.

* Attention: In future, new installation regulations will apply (see drafts DWA-A 791-1 and AwSV)

To ensure that the specified dimensions are satisfied for the Roth KWT, we recommend wall clearances of 400 mm and 100 mm: this is allowed for in the relevant table for room dimensions.

Configura- tion variant	Nominal capacity in l				Block dimensions length × width in mm				Room dimensions length × width in mm/min.				Accessories*
	750 l-C	1000 l-C	1000 l-R	1500 l-R	750 l-C	1000 l-C	1000 l-R	1500 l-R	750 l-C	1000 l-C	1000 l-R	1500 l-R	
11			1000	1500			1430 × 745	1660 × 760			1930 × 945 (1630 × 1245)	2160 × 960 (1860 × 1260)	1 GR
12			2000	3000			1430 × 1585	1660 × 1600			1930 × 1765	2160 × 1800	1 GR, 1 RR
13			3000	4500			1430 × 2425	1660 × 2440			1930 × 2625	2160 × 2640	1 GR, 2 RR
14			4000	6000			1430 × 3265	1660 × 3280			1930 × 3465	2160 × 3480	1 GR, 3 RR
15			5000	75.00			1430 × 4105	1660 × 4120			1930 × 4305	2160 × 4320	1 GR, 4 RR
11	750	1000			770 × 760	820 × 820			1270 × 960	1320 × 1020			1 G
12	1500	2000			770 × 1600	820 × 1740			1270 × 1800	1320 × 1940			1 G, 1 R
13	2250	3000			770 × 2440	820 × 2660			1270 × 2640	1320 × 2860			1 G, 2 R
14	3000	4000			770 × 3280	820 × 3580			1270 × 3480	1320 × 3780			1 G, 3 R
15	3750	5000			770 × 4120	820 × 4500			1270 × 4320	1320 × 4700			1 G, 4 R
22	3000	4000			1610 × 1600	1740 × 1740			2110 × 2100	2240 × 2240			1 G, 2 R, 1 B
23	4500	6000			1610 × 2440	1740 × 2660			2110 × 2940	2700 × 3160			1 G, 4 R, 1 B
24	6000	8000			1610 × 3280	1740 × 3580			2110 × 3780	2700 × 4080			1 G, 6 R, 1 B
25	7500	10000			1610 × 4120	1740 × 4500			2110 × 4620	2700 × 5000			1 G, 8 R, 1 B
32	4500	6000			2450 × 1600	2660 × 1740			2950 × 2100	3160 × 2240			1 G, 3 R, 2 B
33	4750	9000			2450 × 2440	2660 × 2660			2950 × 2940	3160 × 3160			1 G, 6 R, 2 B
42	6000	8000			3290 × 1600	3580 × 1740			3790 × 2100	4080 × 2240			1 G, 4 R, 3 B
52	7500	10000			4130 × 1600	4500 × 1740			4630 × 1930	5000 × 2240			1 G, 5 R, 4 B

* Füllstar quick filling system (12 mm nozzle), for row configuration for up to 5 tanks: GR – base unit, RR – row extension

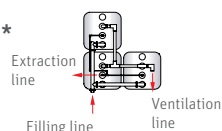
Füllstar universal filling system (6 mm nozzle), for row, block and angle configuration: G – basic unit, R – extension row, B – extension block.
1 extension angle bracket L is required for each angle section in the angle configuration. Subject to technical modifications.

Roth KWT

Angle configuration – 1 stage *

Required accessories:

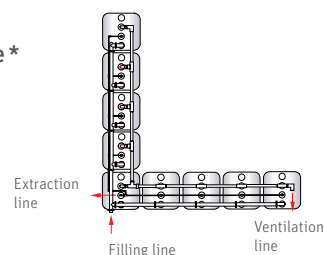
- 1 × base unit G
- 1 × extension row R
- 1 × extension block B
- 1 × extension angle L



Angle configuration – 1 stage *

Required accessories:

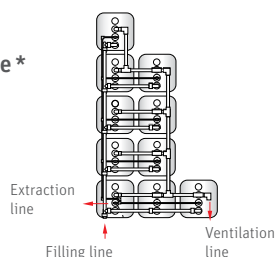
- 1 × base unit G
- 4 × extension row R
- 4 × extension block B
- 1 × extension angle L



Angle configuration – 2 stage *

Required accessories:

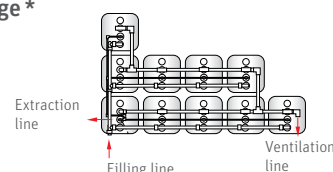
- 1 × base unit G
- 5 × extension row R
- 7 × extension block B
- 2 × extension angle L



Angle configuration – 2 stage *

Required accessories:

- 1 × base unit G
- 7 × extension row R
- 5 × extension block B
- 2 × extension angle L



* The number of angle L extension packages needed is calculated by counting the stages in the planned configuration.

Roth Unitech and Multitech storage and transport tanks

expertise in container technology



Roth Unitech 400, 750, 1000 and 1500 l

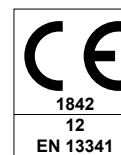
■ Our experience for your safety

Unitech/Multitech tanks are the result of the latest design and production technology. The inner tank is made of tried-and-tested high molecular HDPE, which is blow moulded without seams. The outer tank consists of steel plate galvanised on both sides. The patented beading protects the materials and joins the steel plate outer tank to the HDPE inner tank in a firm and permanent manner. The outer tank acts as a collecting tray with a 100% collection volume in relation to the inner tank.

A leak probe integrated as standard monitors the tank interspace. The use of high-quality materials and the leak-monitored metal encapsulation of the inner tank make this design extremely suitable as an individual tank for storing liquids hazardous to water in the household and commercial sector. Integrated handles allow the containers to be easily manipulated. The low centre of gravity provides a high degree of stability.

■ Roth Unitech – storage tanks for fixed-position configurations

Unitech tanks are approved storage containers for water-hazardous liquids with a flash point > 55 °C, for fixed installation in rooms of buildings without additional collecting space, as individual containers.



Roth Unitech (storage tanks)						
	Length	Width	Height *	Weight M0	Weight M1	Storage permit
400 l	740 (800) mm	700 (740) mm	1170 (1210) mm	46 kg	58 kg	Z-40.21-362
750 l	980 (1020) mm	760 (800) mm	1420 (1600) mm	67 kg	81 kg	Z-40.21-29
1000 l	1280 (1320) mm	760 (800) mm	1420 (1600) mm	82 kg	104 kg	Z-40.21-29
1500 l	1630 (1680) mm	760 (800) mm	1860 (2030) mm	133 kg	160 kg	Z-40.21-283

* Height on base frame to top of screw connection. Dimensions in brackets include packaging.
For installation in the room in which it is to be positioned deduct 90 mm for the separate base frame.

Weight M0 = without packaging, without base frame, weight M1 = complete with packaging and base frame



■ **Roth Multitech – storage and transport tank for the safe transport of hazardous goods**

Multitech containers are approved for transporting hazardous goods of packaging group II or III. They are suitable for use as bulk packaging for the carriage of hazardous goods (liquids):

- › in accordance with the dangerous goods regulation on transport by road, rail and inland navigation (GGVSEB),
- › in accordance with the dangerous goods regulation on transport by sea (GGVSee).

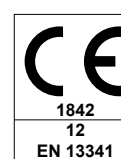
› the fixed base frame allows fork lift trucks or pallet trucks to get underneath.

The specially shaped base frame also provides all-round buffers and transport protection.

Roth Multitech (storage and transport tanks)							
	Length	Width	Height *	Weight M0	Weight M1	Storage permit	Bulk packaging permit
400 l	740 mm	740 mm	1170 (1210) mm	63 kg	64 kg	Z-40.21-362	D/BAM 6403/31HA1
750 l	980 mm	800 mm	1470 (1520) mm	88 kg	89 kg	Z-40.21-29	D/BAM 11580/31HA1
1000 l	1280 mm	800 mm	1470 (1520) mm	107 kg	108 kg	Z-40.21-29	D/BAM 11580/31HA1
1500 l	1640 mm	800 mm	1910 (1950) mm	162 kg	163 kg	Z-40.21-283	D/BAM 6404/31HA1

* Height on base frame to top of screw connection. Dimensions in brackets include packaging.

Weight M0 = without packaging, weight M1 = complete with packaging



Roth Unitech and Multitech storage and transport tanks

safety you can depend on



■ Roth Unitech and Multitech tanks have many different uses

Strict safety

The totally corrosion-free inner tanks and the fully galvanised, corrosion-proof beaded outer tanks are tested for leaks.

Optimal dimensions

- > the compact dimensions of the Unitech/Multitech containers in the 400 l, 750 l and 1000 l sizes mean that no additional stepladder is necessary when using them.
- > maximum storage volume with the smallest space required.

Storage media

- > EL heating oil in accordance with DIN 51603-1,
- > Diesel fuel in accordance with DIN EN 590,
- > FAME in accordance with DIN EN 14214
- > Heating oil in accordance with DIN SPEC 51603-6 EL A Bio,
- > Lubricating oils, hydraulic oils, heat transfer oils Q, alloyed or unalloyed with flash point over 55 °C*,
- > Lubricating oils, hydraulic oils, heat transfer oils Q, used oils, flash point over 55 °C (origin and flash point must be verifiable by the operator)*,

- > Vegetable oils such as cottonseed, olive, rapeseed castor or wheat germ oil in any concentration, that are not used as a foodstuff or for the manufacture of foods

Perfect quality

Constant material and production checks and TÜV-monitored, ISO-accredited production ensure consistently high quality. Years of maintenance-free operation, safeguarded by our long-term guarantee of 5 years.

Installation

The Unitech/Multitech containers are officially approved for installation without any additional collecting tray or collecting space. Installing Unitech/Multitech containers as storage tanks is only permitted as an individual tank in rooms of buildings. (Distance to wall at least 50 mm on three sides, at least 400 mm on a long side.) Up to a filling volume of 1000 l, it is permitted to fill tanks using a self-locking nozzle with unrestricted flow, at a flow rate of max. 200 l/minute.

Scope of delivery

- > optical leak probe and level indicator fitted as standard,
- > base frame fitted as standard for fixed installation ensures adequate ventilation under the tank.

* In the event of the storage of these substances in a Unitech or Multitech tank the leak probe fitted should be replaced by an optical and acoustic leakage warning device, if necessary in accordance with water legislation (water hazard class 3).



Accessories

- > hand pump 0,06 l/stroke
- > optical and acoustic leak warning device – sensor probe must be ordered separately (e.g. for liquids of water hazard class III such as waste oil, prescribed in some federal states)
- > extraction and ventilation kit for individual tank
- > accessories, gland locking nuts with gaskets and ventilation with foam filter
- > W40 electric pump with siphon protection, suction hose nozzle (automatic nozzle optional).
- > filler bowl for MT/UT 750/1000 l

Connection equipment

- > extraction spout with 2" internal thread for electric or pneumatic drum or piston pump as well as fastening for pump holder
- > filling spout with 2" internal thread
- > spout to attach the level indicator
- > extra spout e.g. for installing a ventilation device

Roth Unitech- and Mutitech tanks at a glance

- > Roth Unitech tanks for the **safe storage** of water-hazardous liquids
- > Roth Multitech containers for the **safe storage and transport** of hazardous goods of packaging group II or III
- > for installation without collecting tray
- > inner tank made of tried-and-tested high-molecular HDPE
- > outer tank made of steel plate galvanised on both sides
- > permanent and patented beading on the steel outer tank
- > including leak probe, level indicator and base frame
- > integrated handles make transport easier
- > TÜV-monitored and ISO-accredited production
- > 5-year long-term guarantee

Notes

This image shows a full page of blank graph paper. The background is a very light gray, and it is covered by a grid of thin, darker gray lines. The grid consists of small, equal-sized squares that extend across the entire area of the page, leaving no margins or other markings.

Our strengths

Your benefits

Innovation

- > Early identification of market requirements
- > In-house materials research and development
- > In-house engineering

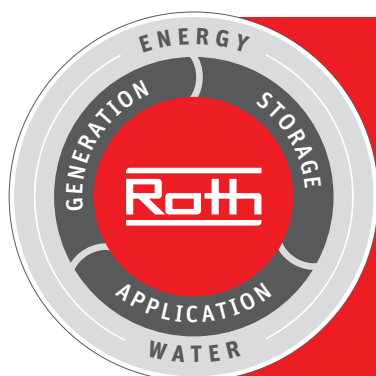
Service

- > Extensive field network of qualified sales professionals
- > Hotline and project planning service
- > Factory training courses, planning and product seminars
- > Fast availability of all Roth brand product ranges throughout Europe
- > Comprehensive warranty and extended liability agreements

Products

- > Complete range of easy-to-install product systems
- > Manufacturing expertise for the complete product range within the Roth Industries group of companies
- > All products and product systems are certified in accordance with DIN EN ISO 9001:2008

A large, stylized white Roth logo on a dark background. The logo features the word "Roth" in a bold, sans-serif font, with horizontal lines above and below the text. A hand is visible at the bottom left, palm up, as if presenting the logo.



Roth Energy and Sanitary Systems

Generation

- > Solar systems
- > Heat pump systems
- > Solar heat pump systems

Storage

- Storage systems for
- > Domestic and heating water
 - > Combustibles and biofuels
 - > Rainwater and waste water

Application

- > Radiant heating and cooling systems
- > Pipe installation systems
- > Shower systems



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