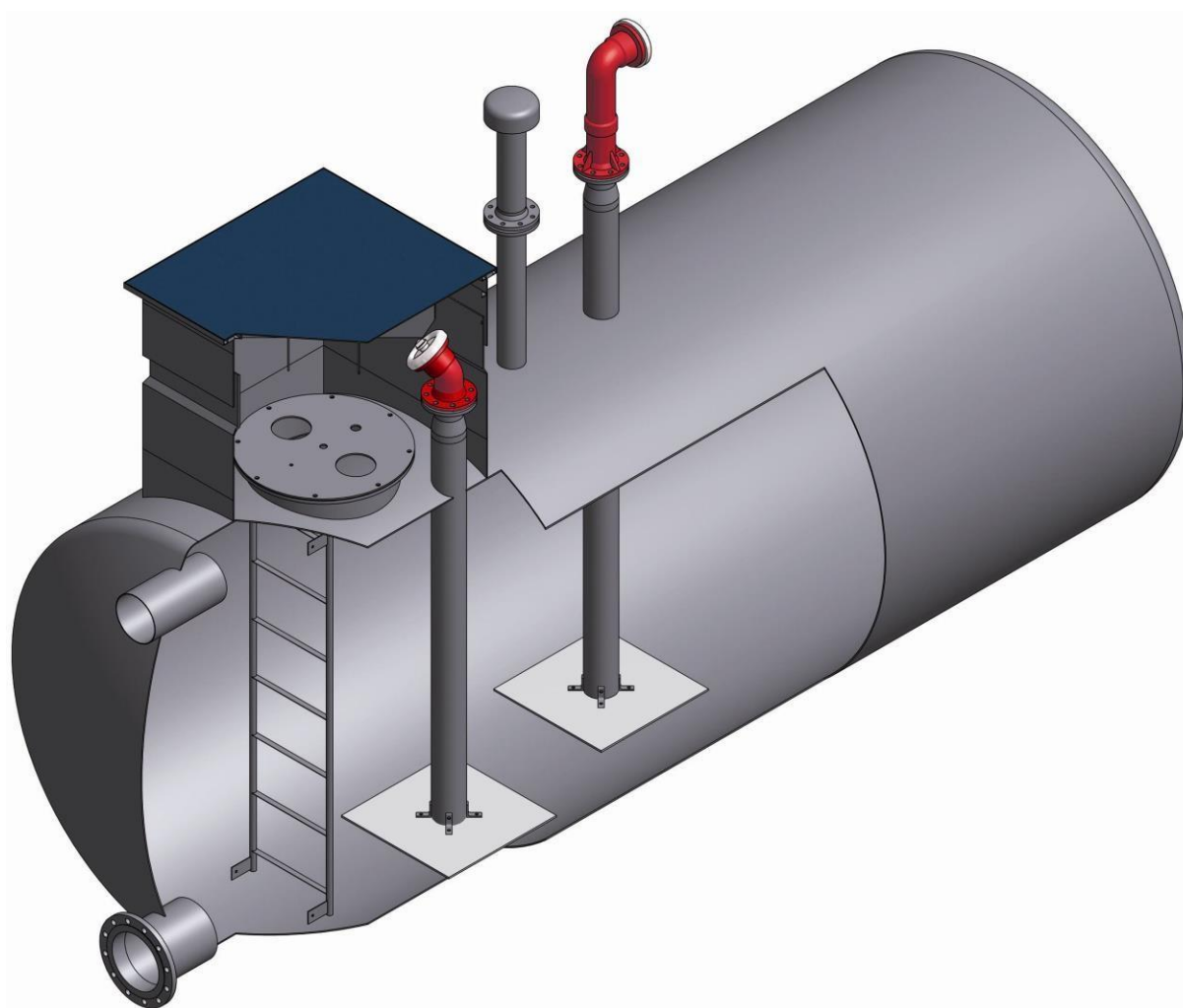


Underground extinguishing water tanks made of steel according to DIN 14230

Transport and installation instructions



Extinguishing water tank 20 m³ to 100 m³

Last update: 21.08.2018

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1. General information

- 1.1 The installation of an underground extinguishing water tank may only be carried out by specialist companies in accordance with these installation instructions.
- 1.2 The points described in this guide must be observed. Failure to comply with this will void any warranty claim.
- 1.3 It is essential that the extinguishing water tank is checked for any damage before it is moved to the excavation pit.
- 1.4 In addition to the specifications of this appendix, the generally accepted rules of technology must be observed.
- 1.5 Every newly created extinguishing water tank must be approved by representatives of the relevant authority and checked for function. The proof and calculation of the required extinguishing water quantity is carried out by the responsible fire protection expert. Please note that the actual usable volume of extinguishing water is less than the stated total container volume.
- 1.6 The sum of the individual tanks (usable volume) results in the capacity of the extinguishing water tank.
- 1.7 The connecting pipes between individual tanks must have a total of at least 4 times the hydraulic cross-section of all suction lines. The connecting pipes on site must ensure a shear-elastic connection of the containers.
- 1.8 For the calculation of the amount of extinguishing water, the geodetic suction height of 7.5 m must not be exceeded.
- 1.9 Every newly created extinguishing water tank must be approved by representatives of the competent authority.
- 1.10 Each container is equipped with a manhole so that the entire volume can be inspected and cleaned.
- 1.11 Each extinguishing water tank must be equipped with at least one ventilation pipe DN 100, which should be installed in the immediate vicinity of the suction pipe. In the case of several containers, a ventilation pipe must be provided for each individual container.
- 1.12 The extinguishing water extraction must be carried out with an extinguishing water suction connection in accordance with DIN 14244, whereby the extraction point must be outside the debris shadow of buildings. The suction tubes must have an inner diameter of 125 mm and must not exceed a length of 10 m.
- 1.13 The number of suction pipes depends on the volume of the total amount of extinguishing water. For a usable capacity of up to 150 m³, at least 1 suction pipe must be provided, for a usable capacity of 150 m³ - 300 m³ at least 2 suction pipes and for larger quantities of extinguishing water over 300 m³ at least 3 suction pipes.
- 1.14 The tank is designed in accordance with DIN 6608 for a maximum earth cover of 1.5 m including normal traffic loads on paved roads (SLW 30 in accordance with DIN 1072). In the version with a drivable shaft of 15 t, as well as the on-site construction of a paved roadway, the tank is sufficiently designed for the load with a fire engine (permissible total weight of 18 t).

In accordance with DIN 14230, further requirements are specified for accessibility, accessibility, frost resistance, acceptance, care, maintenance and labelling. These must also be observed on site.

2. Technical data extinguishing water tank

2.1 Equipment

Dehoust extinguishing water holders are equipped with the following accessories as standard. However, different designs can be supplied depending on the project.

Art.Nr. 900149 steel dome shaft 1000x1000

15-tonne drivable version in accordance with DIN 14230 on paved road for fire engines. Three-part prefabricated manhole shaft, height-adjustable 800 - 1000 mm, with galvanized. Cover, waterproof (no pressurized water), central locking for hydrant key, lid inserted at floor level, with a gas pressure spring, connections: 1 pipe entry 108 mm and 1 socket 2" on both sides for on-site

Unscrew

Item no. 116101 Extinguishing water suction connection form B according to DIN14244

with suction pipe DN 125 in 1.4301 and anti-vortex plate, fixed coupling A according to DIN 14319 in aluminium with blind coupling, flanged outside the container shaft, supplied loose, (above-ground without direction finder)

Item no. 116105 Vent DN 100 stainless steel 1.4301 supplied loose with cap, flanged outside the container shaft **Item no. 116103 Pipe nozzle for overflow DN 100** suitable for KG pipe for on-site continuation or integration for infiltration or similar.

Furthermore, the following CONTINGENT POSITIONS are possible

Item no. 116107 Filling pipe 1.4301 with B-coupling and blind flange flanged on the top of the tank or in the shaft (only for filling with service water, filling with service water is also possible via the dome lid (opening Ø160) possible at any time).

Filling and replenishment with drinking water is only possible with safety equipment in accordance with DIN EN 1717. (Safety device AA, DC)

Item No. 116108 Boarding ladder

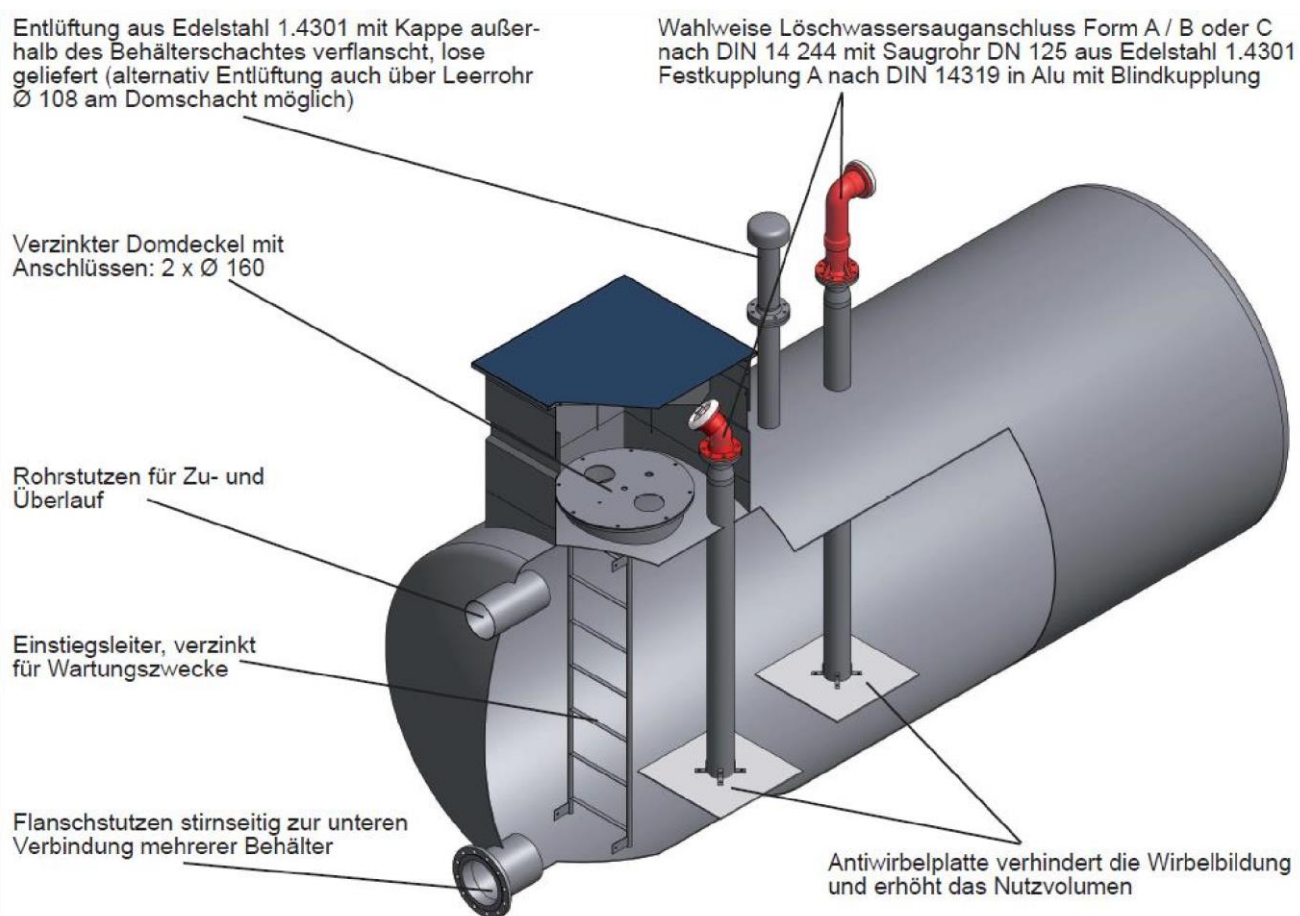
For extinguishing water tanks, galvanized for maintenance purposes

Item no. 110045 Insulation test on delivery

with high voltage 6,000V

Item No. 910600 Storage Monitoring

Item no. 900182 Flange nozzle on the front side for on-site connection of several tanks



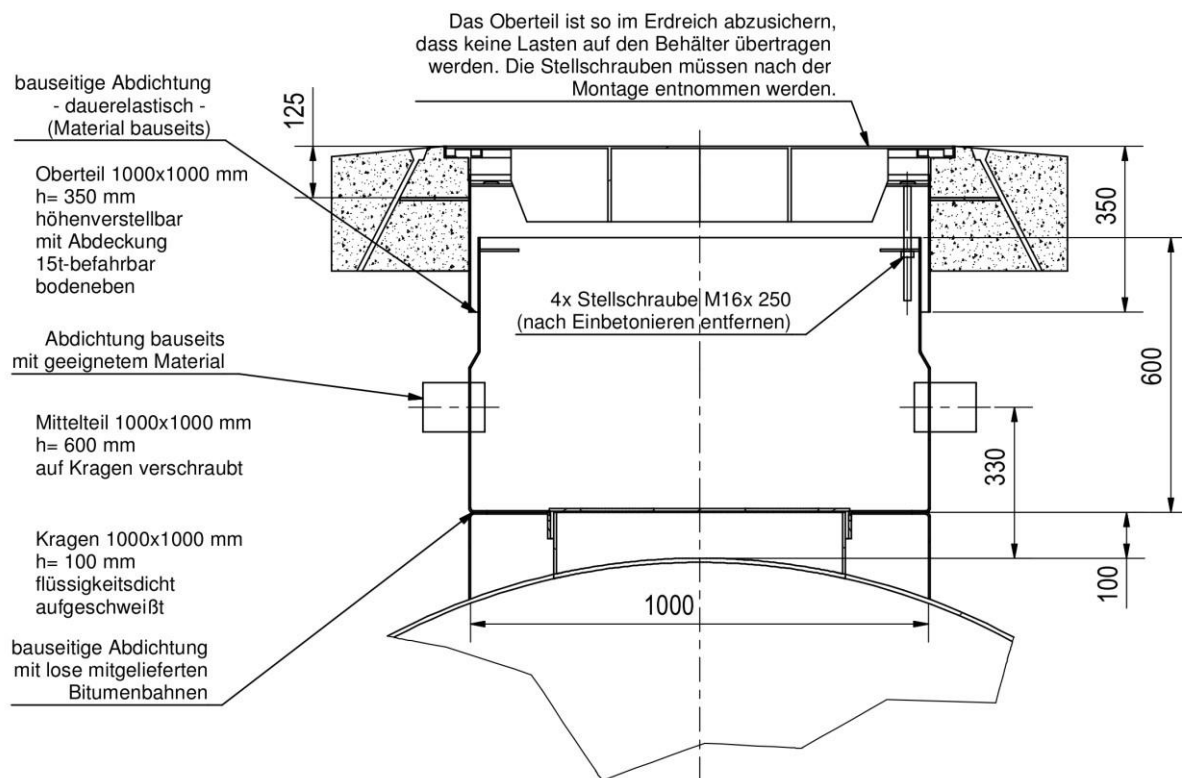
Abweichende Ausführungen und Sonderzubehör sind möglich

2.2 Dimensions and weights

Art.-Nr.	Inhalt Liter	Durchmesser mm	Tanklänge mm	Gewicht kg	Nutzvolumen Liter
116000	20.000	2.000	6.870	2.480	18.500
116010	25.000	2.000	8.420	2.970	22.900
116020	30.000	2.000	9.970	3.580	27.200
116005	20.000	2.500	4.570	2.820	19.100
116015	25.000	2.500	5.580	3.295	23.700
116025	30.000	2.500	6.740	3.750	29.000
116030	40.000	2.500	8.710	4.490	37.900
116040	50.000	2.500	10.680	5.450	46.800
116050	60.000	2.500	12.650	6.520	55.700
116035	40.000	2.900	6.650	5.500	38.700
116045	50.000	2.900	8.150	6.455	48.000
116055	60.000	2.900	9.585	7.420	56.900
116060	80.000	2.900	12.750	9.550	76.500
116070	100.000	2.900	15.895	11.820	96.000

3. Dom shaft

- 3.1 A manhole shaft must be located above each manhole of a tank completely installed in the ground.
- 3.2 A manhole is necessary for operation and maintenance. They must be arranged in such a way that safe climbing to the bottom of the container and rescue from the container is ensured.
- 3.3 Manhole shafts must be covered in such a way that the penetration of surface water into the manhole is sufficiently prevented. The cover must be able to be opened with hydrant keys A or B according to DIN 3223.
- 3.4 Loads, e.g. live loads, must not be transferred to the tank through the manhole shaft. For this purpose, the adjusting screws in the height-adjustable shaft must be removed after the shaft top has been concreted in. The shaft overhead must be embedded in the road structure so that no loads act on the tank.
- 3.5 Openings through manhole shafts for cables and pipelines must be protected against the ingress of liquids on site. For example, by sealing with elastic mortar, putty, pouring or foaming.



4. Security

- 4.1 The relevant accident prevention regulations for construction work must be observed during all work.
- 4.2 A 2nd person is required to secure the container.
- 4.3 The container or manhole cover must always be kept closed. Only when working in the container can it remain open, the area around the opening must then be secured accordingly.

5. Transport and professional unloading

- 5.1 The containers are transported in such a way that damage to the insulation and deformation of the tank walls is largely avoided.
- 5.2 The tanks must be loaded and unloaded with suitable equipment, whereby shocks must be avoided. Hoists may only be attached to the transport eyelets.
- 5.3 The tanks may only be placed on a suitable surface (e.g. wooden planks, sand bed) for temporary storage.

6. Required tank inspection before installation

- 6.1 The integrity of the tank and its polyurethane external insulation must be determined and certified by an expert immediately before lowering into the tank pit. For this purpose, the tank must be subjected to a high-voltage test of 6,000 volts
- 6.2 If the insulation is damaged, the damaged areas must be repaired carefully and with suitable means so that the insulation is fully restored. As a rule, in order to determine that the integrity of the insulation has been restored, a new high-voltage test must be carried out in accordance with paragraph 4.1.
- 6.3 If the wall of the tank is damaged, the tank may not be installed unless an inspection has been carried out by an expert and the expert has certified the suitability of the tank for underground installation.
- 6.4 In order to assess the defective wall parts, especially in the area of the weld seams, the insulation must usually be removed. The expert decides whether and, if so, which repairs are to be carried out on the tank.
- 6.5 In the certificate in which the expert confirms that the tank is still suitable for underground installation, the expert indicates the nature of the damage and the measures taken to remedy it.

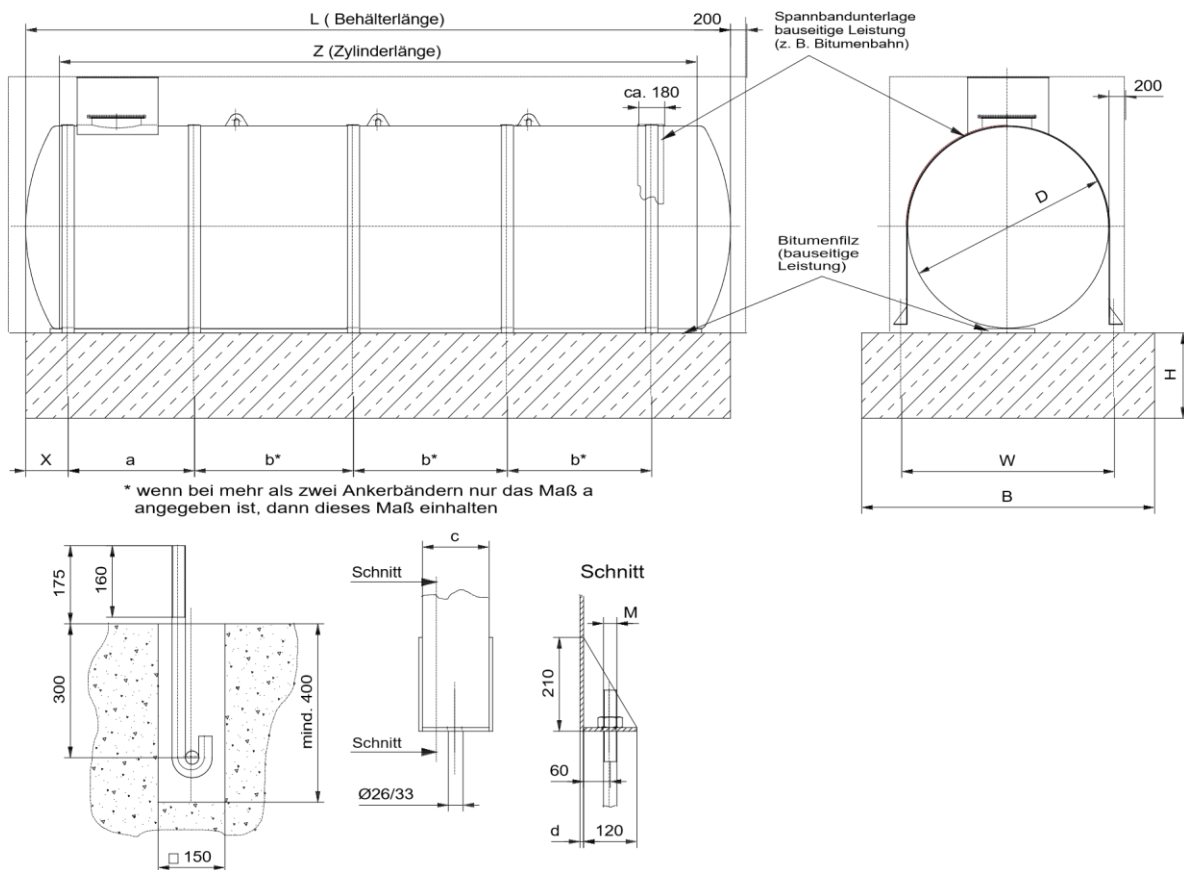
7. Installation

Note: For the excavation and securing of the tank pit, the relevant civil engineering regulations must be observed!

- 7.1 The tank pit must be prepared in such a way that the tank is not damaged during installation and a change in its position is not expected after the tank pit has been backfilled.
- 7.2 The tank must be lowered into the tank pit using equipment that cannot damage the tank and insulation. Grinding or rolling of the tank is not permitted.
- 7.3 The tank must rest evenly along its entire length. Non-load-bearing subsoil must be sufficiently consolidated or a foundation must be used.
- 7.4 Before backfilling the tank pit, transport eyelets and other iron parts protruding from the insulation must be protected against corrosion.
- 7.5 After filling the tank pit, the tank must be surrounded on all sides by a layer of non-combustible substances at least 20 cm thick that do not endanger the insulation. There must be no cavities between the tanks and the backfill material.
- 7.6 As a rule, the requirement of paragraph 1 is fulfilled if sand with a grain size ≤ 2 mm or other soil materials free of sharp-edged objects, stones, ash, slag and other foreign and aggressive substances are used for the preparation of the bottom and for filling the tank pit.

8. Measures in the event of groundwater or waterlogging / tank anchoring

If the tank is located in an area in which a change in its position due to groundwater or waterlogging is to be expected, it must be secured with at least 1.3 times the safety against the buoyancy of the empty tank in relation to the highest possible water level. For this purpose, we recommend tank anchors. The anchor bolts are fixed in a concrete sole. The space between the tank base and a concrete slab underneath as buoyancy protection must not be filled with sand or any other flowable material. Measures must be taken to prevent damage to the insulation of the tanks, in particular in the area of the sole and the tension straps. The measures must be carried out in such a way that cathodic corrosion protection is not impaired. Technical data, which are only to be seen as a manufacturing aid and are therefore not binding, are summarized in the table below. The design of the dimensioning of the concrete slab must be prepared on site.



						Anchor straps					Foundation dimension		
Capacity (m³)	D mm	Z Mm	X mm (ca.)	a mm	b mm	Number	M	Length mm	cx d	In mm	B mm	L mm	H mm
20	2000	6200	370	6050	-	2	24	5030	100 x 6	2210	2600	6870	650
25		7750	370	4100	3500	3	24	5030	100 x 6	2210	2600	8420	700
30		9300	370	4900	4250	3	24	5030	100 x 6	2210	2600	9970	700
20	2500	3740	450	3590	-	2	30	6320	100 x 8	2710	3100	4550	850
25		4750	450	2600	2000	3	30	6320	100 x 8	2710	3100	5550	900
30		5910	450	2880	2880	3	30	6320	100 x 8	2710	3100	6710	950
40		7880	450	4200	3530	3	30	6320	100 x 8	2710	3100	8700	1000
50		9850	450	5150	4550	3	30	6320	100 x 8	2710	3100	10680	1000
60		11820	450	4100	3785	4	30	6320	100 x 8	2710	3100	12650	1050
40	2900	5700	500	3150	2425	3	30	7350	150 x 8	3110	3500	6650	1150
50		7200	500	3850	3225	3	30	7350	150 x 8	3110	3500	8150	1200
60		8645	500	2840	2840	4	30	7350	150 x 8	3110	3500	9585	1200
80		11820	500	3385	2770	5	30	7350	150 x 8	3110	3500	12750	1250
100		14960	500	3635	2800	6	30	7350	150 x 8	3110	3500	15895	1250

The design of the dimensioning of the concrete slab must be prepared on site.

9. Required spacing and overlapping

9.1 Tanks with an earth cover of at least 0.8 m should be at least 0.4 m apart. The tanks must be at least 1 m away from neighbouring properties.

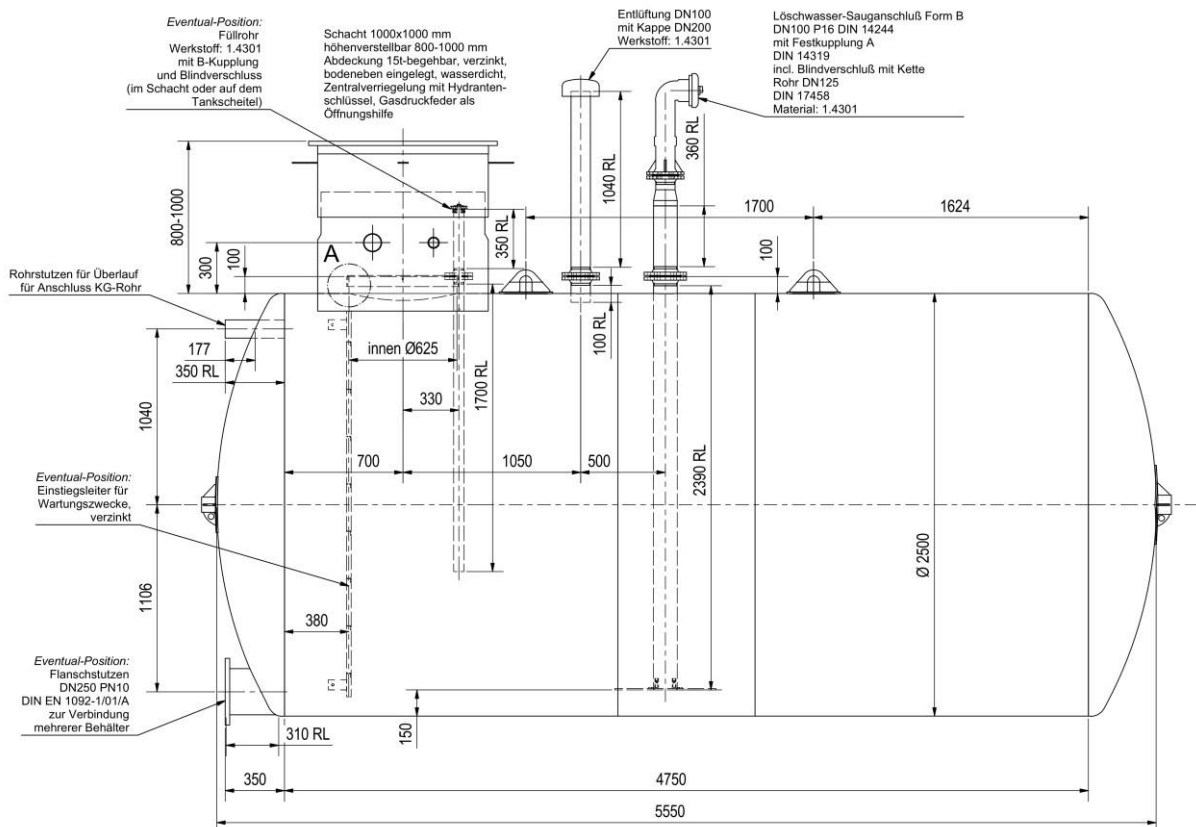
9.2 The tanks must be installed in such a way that there is a distance of at least 1 m from public supply lines.

9.3 Compliance with the minimum distance to public supply lines may be waived in agreement with the competent authorities if it is ensured that a risk to the supply line is excluded by means of plug-in pipes or other measures.

9.4 For free loads, an earth cover of at least 0.8 m is required.

9.5 The tanks are designed for earth cover up to 1.5 m, including normal traffic loads on paved roads (SLW 30 according to DIN 1072). In the case of other conditions (e.g. thicker earth covers), additional measures may have to be taken together with the expert in accordance with the § 16.1 of the VbF.

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Tank dimensions and pit dimensions				Minimum pit dimensions		
Nominal content	Dia.	Tank length	Weight	Length	Width	Depth
Litre	mm	mm	medical history	mm	mm	mm
20.000	2.000	6.870	2.480	7.270	2.400	3.000-3.200
25.000	2.000	8.420	2.970	8.820	2.400	3.000-3.200
30.000	2.000	9.970	3.580	10.370	2.400	3.000-3.200
20.000	2.500	4.570	2.820	4.970	2.900	3.500-3.700
25.000	2.500	5.580	3.295	5.980	2.900	3.500-3.700
30.000	2.500	6.740	3.750	7.140	2.900	3.500-3.700
40.000	2.500	8.710	4.490	9.110	2.900	3.500-3.700
50.000	2.500	10.680	5.450	11.080	2.900	3.500-3.700
60.000	2.500	12.650	6.520	13.050	2.900	3.500-3.700
40.000	2.900	6.650	5.500	7.050	3.300	3.900-4.100
50.000	2.900	8.150	6.455	8.550	3.300	3.900-4.100
60.000	2.900	9.585	7.420	9.985	3.300	3.900-4.100
80.000	2.900	12.750	9.550	13.150	3.300	3.900-4.100
100.000	2.900	15.895	11.820	16.295	3.300	3.900-4.100

Technical changes are subject to change without notice.

Performance specifications are non-binding; an assured property cannot be derived from this.