



CUBE-Tank 2000I

- D**
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- E**
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-> *Allmänt typgodkännande, Sidan 117 - 138*
- SL**
141-145 **Dokumentacija rezervoarja in tehnične informacije**
Številka soglasja: Z-40.21-593

- D** **Wichtige Unterlagen für den Betreiber!**
Bitte sorgfältig aufbewahren!
3 (Unterlagen sind bei Prüfungen der Tankanlagen vorzuzeigen.)
- GB** **Important documents for the operator!**
Please keep in a safe place!
30 (Documents are to be presented during inspections of the tank systems.)
- F** **Documents importants pour l'exploitant !**
À conserver soigneusement !
57 (Les documents sont à présenter lors des inspections des stations de ravitaillement.)
- I** **Documenti importanti per l'operatore !**
Conservare con cura !
62 (I documenti devono essere presentati in caso di verifiche degli impianti serbatoio)
- E** **¡Documentación importante para el explotador!**
¡Por favor, conservarla cuidadosamente!
67 (La documentación debe mostrarse en las comprobaciones de las instalaciones de depósitos).
- CZ** **Důležité podklady pro provozovatele !**
Pečlivě je, prosím, uložte !
72 (Podklady se musí předkládat při zkouškách čerpacích zařízení.)
- DK** **Vigtig dokumentation for brugeren !**
Bedes opbevaret omhyggeligt !
77 (Dokumentation skal forevises ved prøvning af tankanlæg.)
- FIN** **Tärkeitä asiakirjoja käyttäjäritykselle!**
Säilytettävä huolellisesti!
82 (Asiakirjat on esitettävä säiliölaitteistojen tarkastusten yhteydessä.)
- HR** **Važni dokumenti za vlasnika!**
Čuvajte ih na sigurnom!
87 (Dokumenti se moraju predložiti prilikom pregleda sustava spremnika.)
- N** **Viktige dokumenter for brukeren!**
Oppbevar dem på et trygt sted.
92 (Dokumentene skal fremvises ved kontroll av tankanleggene.)
- NL** **Belangrijke documenten voor de exploitant!**
Bewaar deze zorgvuldig!
97 (Documenten moeten bij controles van de tankinstallaties worden getoond.)
- P** **Documentação importante para a entidade exploradora!**
Guardar em local seguro!
102 (A documentação deve ser apresentada em caso de inspeção dos sistemas de tanques.)
- PL** **Ważne dokumenty przeznaczone dla użytkownika!**
Starannie przechować!
107 (Dokumenty należy okazać podczas kontroli instalacji tankowania.)
- S** **Viktiga underlag för idkaren !**
Förvara dem noga !
112 (Underlagen ska kunna visas upp när tankanläggningen kontrolleras.)
- SL** **Pomembna dokumentacija za upravljavca!**
Skrbno shranite!
141 (Ob pregledih sistemov rezervoarjev morate predložiti dokumentacijo.)

11. General Technical Approval

Deutsches
Institut
für
Bautechnik

DIBt

A public law institution jointly established by the German Federal Government and the federal states

Approval and licensing authority for building products and designs

Date:

Reference:

16/01/2023

II 25-1.40.21-74/22

General Technical Approval/ General Design Certification

Number:

Z-40.21-593

Period of validity

from: 16 January 2023

to: 18 October 2027

Applicant:

CEMO GmbH

In den Backenländern 5
71384 Weinstadt, Germany

Subject of this decision:

Rotational-moulded container combination made from polyethylene (PE)

Type: CUBE Tank 2000 I

General Technical Approval is hereby granted for the above-mentioned item, which represents the subject of this decision.

This decision comprises nine pages and five annexes made up of 12 pages.

This General Technical Approval/General Design Certification replaces General Technical Approval/General Design Certification No. Z-40.21-593 of 18 October 2022.

General Technical Approval was granted for the first time for the item representing the subject of this decision on 18 October 2022.

DIBt

I GENERAL PROVISIONS

- 1 This decision shall serve as verification of the usability or applicability of the item representing the subject of this decision in accordance with the State building codes [Landesbauordnungen].
- 2 This decision is not intended to replace the permits, approvals and certifications required by law for the execution of construction projects.
- 3 This decision is granted without prejudice to the rights of third parties, particularly private industrial property rights.
- 4 Copies of this decision are to be provided to the user of the item forming the subject of this decision without prejudice to any more detailed provisions included in the "Special provisions". In addition, the user of the item forming the subject of this decision must be made aware of the fact that this decision must be made available at the location in which the item is to be used or applied. Copies shall also be made available to the relevant authorities upon request.
- 5 This decision may only be duplicated in full. Extracts may only be published with the consent of the Deutsches Institut für Bautechnik [German Institute for Structural Engineering]. Text and images used in promotional literature shall not contradict this decision; translations shall include the note: "Translation of the original German version not reviewed by the Deutsches Institut für Bautechnik".
- 6 This decision may be revoked. The provisions may subsequently be supplemented and amended, particularly where this is required on the basis of new technical developments.
- 7 This decision has been made on the basis of the information and documents provided by the applicant. Any changes made to such information and documents are not covered by this decision and must therefore be reported to the Deutsches Institut für Bautechnik without delay.

II SPECIAL PROVISIONS

1 Item forming the subject of this decision and scope of use/application

(1) The subject of this decision is factory-made CUBE Tank containers, as described in Annex 1, with a storage capacity of 2000 l and comprising a rotational-moulded, almost cuboid inner container (storage container) and a surrounding outer container, which serves as a collection container. Together, these constitute a container combination made from polyethylene (PE rotary material) – hereinafter referred to as the container. The outer container is reinforced with three horizontally circumferential tubular steel bindings and is overlapped by the top of the inner container to prevent rainwater ingress.

(2) The peripheral units used for the purposes of filling, ventilation and air extraction; safeguarding against overfilling; emptying and monitoring the fill level and any leakage, as well as any other equipment units, are arranged on the top of the inner container. In addition to the sealing cap, there is an optional second flange connection on the top.

(3) The containers may only be used as individual containers in rooms within buildings and in outdoor areas, but must not be used in Zone 0 or 1 potentially explosive atmospheres. When used in areas prone to flooding, the containers must be positioned in such a way that the floodwater cannot reach them.

(4) This decision has been granted without prejudice to the provisions and the testing and approval requirements set out in other areas of law.

(5) The containers are to be used for the fixed, unpressurised storage of the water-polluting liquids listed below at a maximum temperature of 40°C. Mixing the liquids being stored is not permissible:

1. Fuel oil EL as described in DIN 51603-1¹,
2. Fuel oil DIN 51603 – 6 EL A Bio 5 to Bio 15 as described in DIN SPEC 51603-6² with the addition of FAME in accordance with DIN EN 14214³, without any additional alternative components,
3. Diesel fuel as described in DIN EN 590⁴,
4. Fatty acid methyl esters as described in DIN EN 14214³ (biodiesel)
5. Lubricating, hydraulic or Q heat transfer oils, blended or pure, flash point > 55°C,
6. Lubricating, hydraulic or Q heat transfer oils, used, flash point > 55°C; the operator must be able to provide evidence of the origin and the flash point,
7. Ethylene glycol (CH₂OH) as radiator antifreeze,
8. Pure urea solution 32.5% as an NOX reduction agent (e.g. AdBlue) in accordance with DIN 70070⁵, with a max. density of 1.15 g/cm³.

(6) This decision takes account of the requirements for the item forming the subject of this decision under water law. According to Section 63(4)(2) and (3) of the German Federal Water Act [Wasserhaushaltsgesetz, WHG]⁶, the item forming the subject of this decision has therefore been deemed suitable under water law.

(7) The period of validity of this decision (see page 1) relates to its application for the installation or positioning of the item forming the subject of this decision and not to its application for the subsequent use of that item.

1	DIN 51603-1:2020-09	Liquid fuels - Fuel oils - Part 1: Fuel oil EL, minimum requirements
2	DIN SPEC 51603-6: 2017-03	Liquid fuels - fuel oils - Part 6: Fuel oil EL A, minimum requirements
3	DIN EN 14214:2019-05	Liquid petroleum products - Fatty acid methyl esters (FAME) for use in diesel engines and heating applications - Requirements and test methods
4	DIN EN 590:2022-05	Automotive fuels - Diesel - Requirements and test methods
5	DIN 70070:2005-08	Diesel engines - NO _x reduction agent AUS 32 - Quality requirements
6	Act on the Regulation of Water Resources (Federal Water Act [Wasserhaushaltsgesetz] - WHG), 31 July 2009 (Federal Law Gazette I p. 2585), last amended by Article 12 of the Law of 20 July 2022 (Federal Law Gazette I p. 1237)	

2 Provisions for the building products

2.1 General provisions

The containers and their components must comply with Sections 1 and 2 of the Special provisions and the annexes to this decision, as well as with the information submitted to the Deutsches Institut für Bautechnik.

2.2 Materials, properties and composition

2.2.1 Materials

Only the materials listed in Annex 2 may be used to manufacture the containers.

2.2.2 Structural details

The structural details of the containers must comply with Annexes 1.1 to 1.7 and the information submitted to the Deutsches Institut für Bautechnik.

2.2.3 Stability

The containers must remain stable under the applicable conditions for use up to an operating temperature of 40°C. A structural certification that takes account of the effects of wind has not been provided.

2.2.4 Fire behaviour

In the thickness in which it is to be applied, the material polyethylene (PE) is normally flammable (building material class B2 in accordance with DIN 4102-1⁷). See Section 3.1(1) with regard to its resistance to the effects of flames.

2.3 Manufacturing, packaging, transportation, storage and labelling

2.3.1 Manufacturing

(1) The containers must be manufactured in accordance with the manufacturing specifications submitted to the Deutsches Institut für Bautechnik.

(2) In the event that significant changes are made to the rotation moulding system (e.g. to the rotation tool), the certifying body must be informed of this to enable it to come to a decision with regard to any further action that may need to be taken (intervention by the Deutsches Institut für Bautechnik, special inspections).

(3) The containers may only be manufactured in the plant mentioned below using the same production facilities as were used to manufacture the container that passed the initial inspection:

CEMO GmbH
Kappelweg 2
91625 Schnellendorf, Germany

(4) The rotational sintering process is to be controlled in such a way that the moulding compound is completely melted but not thermally damaged. Imperfections, improper accumulations of materials and cavities must be avoided.

(5) The moulding compound must be coloured using standard pigments (see Annex 2, Section 1(3)).

2.3.2 Packing, transportation, storage

Packaging, transportation and storage must take place in accordance with Annex 3.

2.3.3 Labelling

(1) The manufacturer must label the containers with the conformity mark (Ü mark), as described in the Übereinstimmungszeichen-Verordnungen der Länder [Regulations on the conformity mark of the states of the Federal Republic of Germany]. Labelling must only take place if the requirements set out in Section 2.4 have been met.

⁷ DIN 4102-1:1981-05

Fire behaviour of building materials and building components – Part 1: Building materials; concepts, requirements and tests

(2) In addition, the manufacturer must clearly and permanently label the containers with the following information on the outer wall of the collection container:

- Serial number,
- Date of manufacture,
- Nominal capacity of the container with a permissible fill level (as per Section 4.1.2) in litres,
- Material (it must be possible to identify the moulding compound and, where applicable, the pigment used from the label, e.g. "PE-LLD - Resinex RX103") for inner and outer containers,
- Permissible operating temperature,
- Information concerning pressure-free operation,
- The note "Außenaufstellung zulässig" [Suitable for outdoor installation] or the note "Außenaufstellung nicht zulässig" [Not suitable for outdoor installation],
- The note "Nur für Lagermedien gemäß allgemeiner bauaufsichtlicher Zulassung/allgemeiner Bauartgenehmigung Nr. Z-40.21-593" [Only for use with the storage media described in General Technical Approval/General Design Certification No. Z-40.21-593].

(3) The fill height corresponding to the maximum permissible fill level must be marked on the container or the fill level indicator (maximum fill level mark).

2.4 Certificate of conformity

2.4.1 General provisions

(1) Confirmation of the compliance of the containers with the provisions of the General Technical Approval included in the decision must be provided for each manufacturing plant in the form of a declaration of conformity from the manufacturer, established on the basis of factory production control and a certificate of conformity issued by a certification body that has been approved in this capacity, together with the performance of regular external inspections by an approved inspection body, including an initial inspection of the containers in accordance with the following provisions.

(2) The manufacturer of the containers must appoint a duly approved certification body and a duly approved inspection body for the purposes of granting the certificate of conformity and conducting the external inspections, including the product inspections that must be carried out in this regard.

(3) The declaration of conformity is to be provided by the manufacturer by means of labelling the building products with the conformity mark (Ü mark), together with a notice concerning the intended use of the products.

(4) The certification body must provide the Deutsches Institut für Bautechnik with a copy of the issued certificate of conformity for its information. The Deutsches Institut für Bautechnik must also be provided with a copy of the initial inspection report for its information.

2.4.2 Factory production control

(1) Factory production control is to be established and performed in every manufacturing plant. Factory production control is understood to be the ongoing monitoring of production by the manufacturer to ensure that the containers that it manufactures are compliant with the General Technical Approval included in this decision (Sections 1 and 2).

(2) Factory production control must include the inspections listed in Annex 4 as a minimum.

(3) The results of factory production control must be recorded and evaluated. The records shall contain the following information as a minimum:

- Description of the building product or the raw material;
- Type of check or inspection;
- Date of manufacture and date of inspection of the building product or the raw material or its components;
- Results of the checks and inspections and comparison with the requirements;
- Signature of the person responsible for the factory production control.

(4) Reports must be retained for a period of at least five years and presented to the inspection body appointed for the purpose of performing external inspections. They are to be submitted to the Deutsches Institut für Bautechnik and the highest competent building authority upon request.

(5) Where the results of inspections are unsatisfactory, the manufacturer shall immediately take the necessary steps in order to rectify the defect. Building products that do not meet the requirements are to be handled in such a way that they cannot be mistaken for compliant products. Once the defect has been rectified, the inspection in question must be repeated without delay, in so far as it is technically feasible.

2.4.3 External inspection

(1) In every manufacturing plant, the plant and the factory production control must undergo regular checks in the form of an external inspection, at least twice per year.

(2) An initial inspection of the containers must be carried out as part of the external inspection. The tests specified in Section 2.4.2 must be carried out, as a minimum, during an external inspection and initial inspection. In addition, samples may be taken for the purpose of spot checks. Sampling and inspections shall fall under the responsibility of the approved inspection body.

(3) The results of the certification and external inspections must be retained for at least five years. They are to be submitted by the certification body or the inspection body to the Deutsches Institut für Bautechnik and the highest competent building authority upon request.

3 Provisions for planning and dimensioning

3.1 Planning and dimensioning

(1) The containers described in this decision (consisting of an inner container and a collection container) are designed to withstand the effects of fire for a duration of 30 minutes without leakage in rooms within buildings that fulfil the technical requirements for boiler rooms and fuel oil storage areas.

(2) Where containers are positioned in outdoor areas, appropriate measures must be taken during the planning and dimensioning of the unit to ensure fires are prevented from spreading to it from surrounding areas or that fires cannot ignite within the unit itself.

(3) The containers should be installed in accordance with the provisions of water law, occupational health and safety regulations and building codes.

(4) Where containers are positioned in outdoor areas, they must be protected from the effects of wind and snow, and the impact of other weather conditions must be kept to a minimum.

(5) The containers must be protected against damage caused as a result of impact by vehicles or vandalism, e.g. by means of protected installation, impact protection or by installing them in a suitable area.

3.2 Design

3.2.1 General provisions

- (1) Containers damaged during transportation or installation must not be used where the damage in question reduces the tightness or stability of the containers. It is not permissible to perform repairs on containers (inner container/collection container).
- (2) Damage is to be assessed and measures to rectify damage are to be taken in consultation with a competent expert in the field of plastics⁸, with the assistance of the applicant where necessary.
- (3) In earthquake areas within earthquake zones 1 to 3, as described in DIN 4149⁹, the containers must be adequately secured in position to ensure that they are not subjected to any concentrated loads in the event of an earthquake.

3.2.2 Equipment of the containers

- (1) The containers should be equipped in accordance with the provisions of water law, occupational health and safety regulations and building codes.
- (2) Any devices with which they are equipped must be designed in such a way that unacceptable excess or negative pressure and unacceptable stresses on the wall of the container are excluded.
- (3) A suitable leak probe is to be installed between the inner container and the collection container (outer container) in accordance with the requirements set out under water law and in compliance with the general requirements set out in the State building codes.

3.2.3 Assembly

3.2.3.1 General provisions

- (1) The container bases must rest fully on a horizontal, even and rigid supporting surface (e.g. concrete, asphalt).
- (2) The containers must be positioned a sufficient distance from walls, other structural elements and one another to enable them to be checked visually for fill level, leaks and condition at any time.
- (3) The identification plate must be positioned on a side of the container that is accessible. The fill level indicator provided must be easy to read.
- (4) The containers are to be positioned vertically in such a way that sufficient possibilities for fire-fighting are provided.

3.2.3.2 Pipes

- (1) Ventilation and air extraction pipes must be sufficiently dimensioned and it must not be possible to shut them off. The pipes and their fittings must be designed to remain leakproof under excess pressure of 0.3 bar. Outlets must be protected against rainwater ingress.
- (2) It is only permissible for multiple containers to be connected to the same ventilation and air extraction pipes if the liquids to be stored or their fumes will not form dangerous compounds.
- (3) When connecting the pipelines to the container support, care must be taken to ensure that no forces and no additional external loads are exerted on the containers that were not foreseen during the planning phase.

⁸ Experts from certification and inspection bodies and other experts determined by the Deutsches Institut für Bautechnik upon request

⁹ DIN 4149:2005-04 Buildings in German earthquake areas - Design loads, analysis and structural design of conventional buildings

3.2.4 Documentation and certificate of conformity

The company performing the work must provide confirmation, in the form of a certificate of conformity, that the containers have been correctly positioned, installed and assembled as described in the manufacturer's assembly instructions and in accordance with the provisions of this decision, taking account of the provisions issued for items of equipment. This confirmation is to be provided to the operator in each individual case and included in the construction file.

4 Provisions for use, upkeep, maintenance and inspection

4.1 Use

4.1.1 Stored liquids

(1) The containers may be used to store water-polluting liquids, as described in Section 1(5) and subject to the restrictions described therein.

(2) It is not permitted to store contaminated media if the contamination in question changes the behaviour of the substance.

4.1.2 Usable container volume

The permissible fill level of containers must be determined in such a way that the containers cannot overflow. Excess pressures that may jeopardise the tightness or stability of the containers must not arise. The permissible fill level of the containers is to be determined in accordance with Annex 5. The overflow protection is to be configured accordingly.

4.1.3 Documents

- Copy of this certificate,
- Copy of the regulations governing the accompanying items of equipment delivered,
- Assembly instructions for the installation of the containers.

4.1.4 Operation

(1) Prior to commissioning the containers, the operator must affix a sign that is to be visible at all times, with details of the liquid being stored, as described in Section 1(5), including its density and concentration, in a suitable location. This shall be without prejudice to any labelling required by other legislation.

(2) The operating regulations set out in the German Ordinance on Installations for Handling Substances Hazardous to Water [Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen - AwSV]¹⁰ must be observed.

(3) Prior to filling, a check must be carried out to ensure that the medium to be stored corresponds to that named on the sign referred to in Paragraph (1) and that the temperature of the medium with which the container is to be filled will not cause the permissible operating temperature set out in Section 1(5) to be exceeded. Furthermore, a check must be carried out to establish the amount of liquid that the container is able to store and whether the overflow protection is in good condition.

(4) The containers may only be filled using fixed connections and an overflow protection system that automatically interrupts the filling process or triggers an acoustic alarm in good time before the permissible fill level is reached.

(5) The entire filling process must be carried out under supervision. Once the filling process is complete, compliance with the permissible fill level set out in Section 4.1.2 must be checked.

(6) For the purposes of the scope of application governed by this decision (static storage), the containers must be emptied prior to their transportation. The position in which filled or partially filled containers have been installed cannot be changed.

(7) When using the containers for the purposes of storing used lubricating, hydraulic or heat transfer oils, these shall constitute collection containers with nozzles allowing for the safe connection of a fixed pipeline or removable lines for use by qualified personnel (not for general use).

¹⁰ Ordinance on Installations for Handling Substances Hazardous to Water (AwSV), 18 April 2017 (Federal Law Gazette I p. 905)

- (8) It is not permitted to fill the containers with different media each time.
- (9) Care must be taken to ensure sufficient ventilation and air extraction for the container.
- (10) It is not permitted to stand/walk or apply loads on top of the container. Snow loads must be removed.

4.2 Upkeep, maintenance

- (1) Measures to rectify damage are to be clarified in consultation with a competent expert in the field of plastics⁸, with the assistance of the applicant where necessary.
- (2) The use of solvents to clean the insides of containers (e.g. for the purposes of an inspection) is not permitted. Accident prevention regulations and provisions governing the use of chemical cleaning agents and the disposal of any residue must be observed.

4.3 Inspections

4.3.1 Functional inspection/pre-commissioning inspection

- (1) Once the container has been installed and the corresponding pipelines and safety equipment have been assembled, a functional inspection must be carried out. This consists of a visual inspection, a leak test, an inspection of the filling, ventilation and extraction lines and other such facilities.
- (2) The functional inspection is not intended to replace the mandatory pre-commissioning inspection, which must be carried out by an expert in accordance with water law; however, it is possible to carry out both inspections at the same time.

4.3.2 Ongoing inspections, post-commissioning inspections

- (1) The operator must perform a visual inspection at least once per week to ensure that the container is not leaking. In the event that a leak is discovered, the unit must be taken out of service immediately and the damaged container must be emptied if necessary.
- (2) The functional inspection of the items of equipment to be used must be carried out in accordance with their respective regulations.
- (3) This shall be without prejudice to any inspections required by other legislation.

Holger Eggert
Head of Division

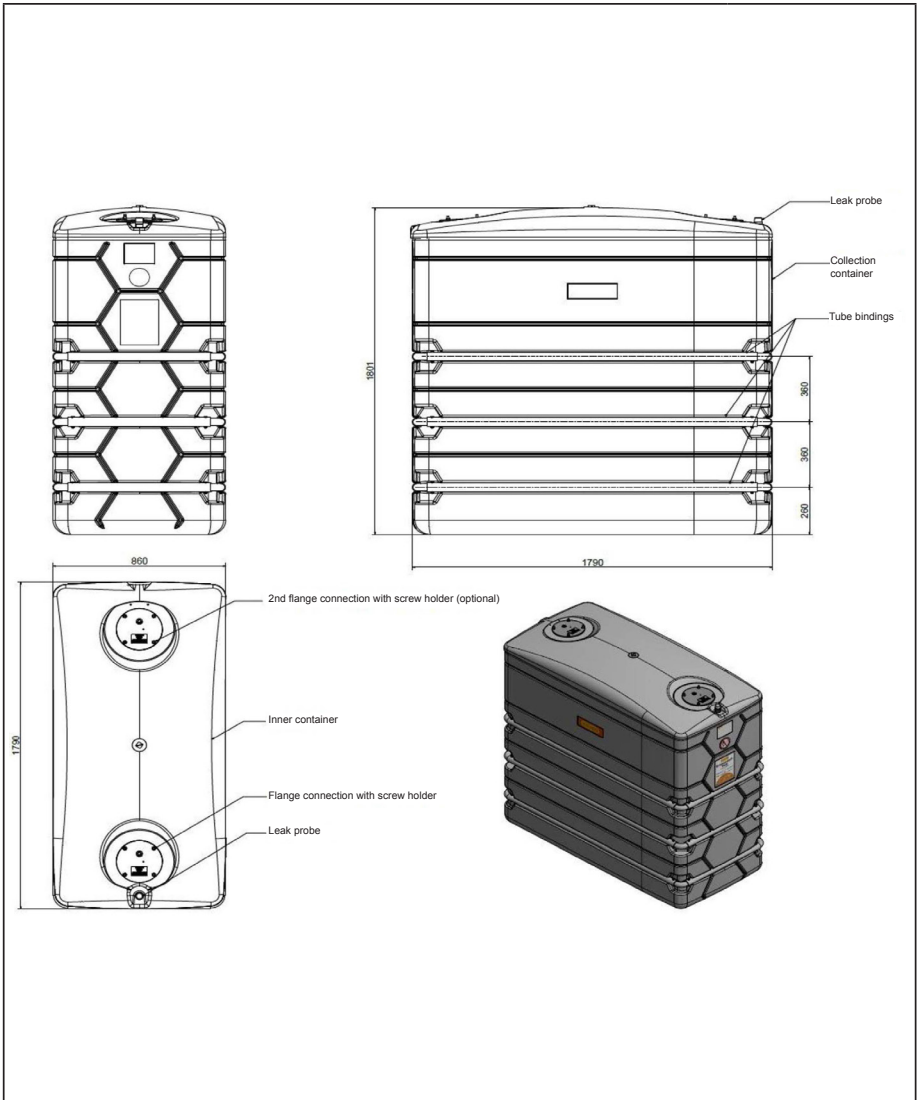
Certified
Pöttsch



Rotational-moulded container combination made from polyethylene (PE)
Type: CUBE Tank 2000 I

Container combination with optional second flange connection
Overview

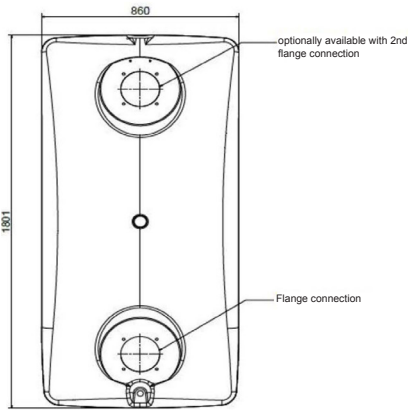
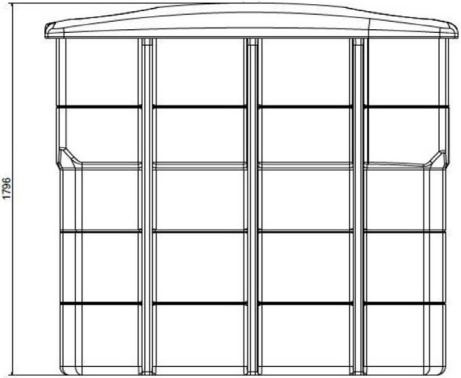
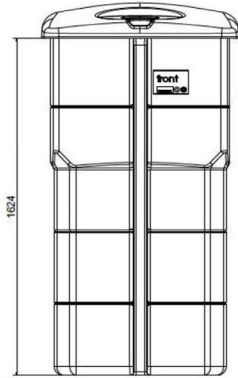
Annex 1



Rotational-moulded container combination made from polyethylene (PE)
 Type: CUBE Tank 2000 I

Container combination with optional second flange connection
 Details and dimensions

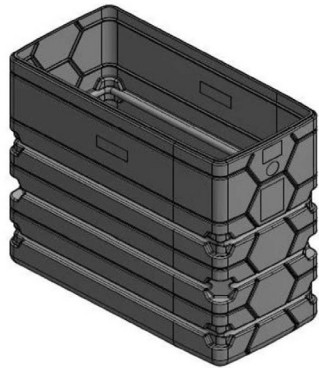
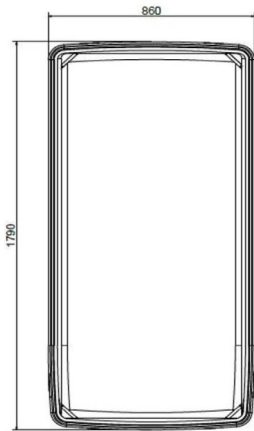
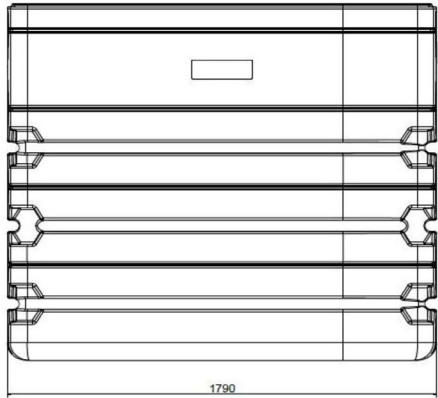
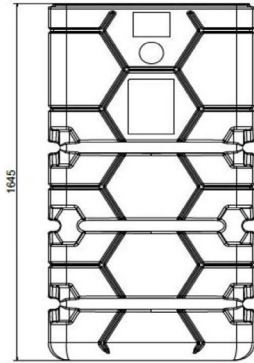
Annex 1.1



Rotational-moulded container combination made from polyethylene (PE)
Type: CUBE Tank 2000 I

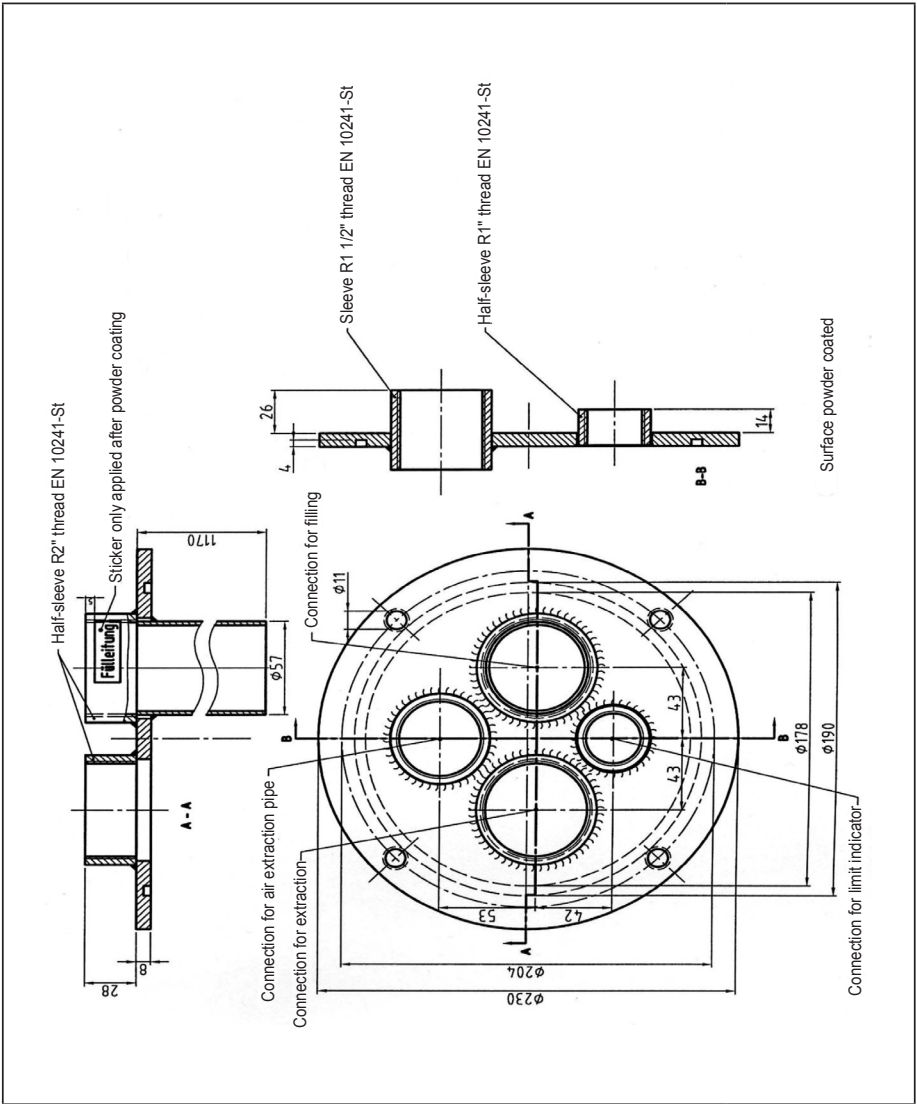
Inner container

Annex 1.2



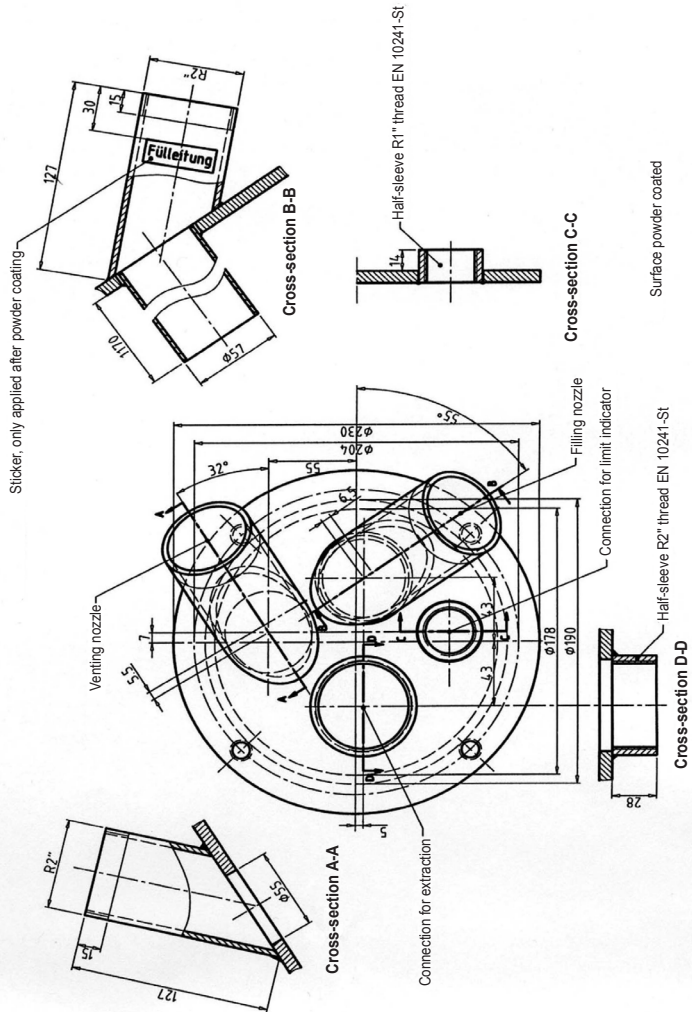
Rotational-moulded container combination made from polyethylene (PE)
Type: CUBE Tank 2000 I
Collection container

Annex 1.3



Rotational-moulded container combination made from polyethylene (PE)
 Type: CUBE Tank 2000 I
 Full dome lid for single tank

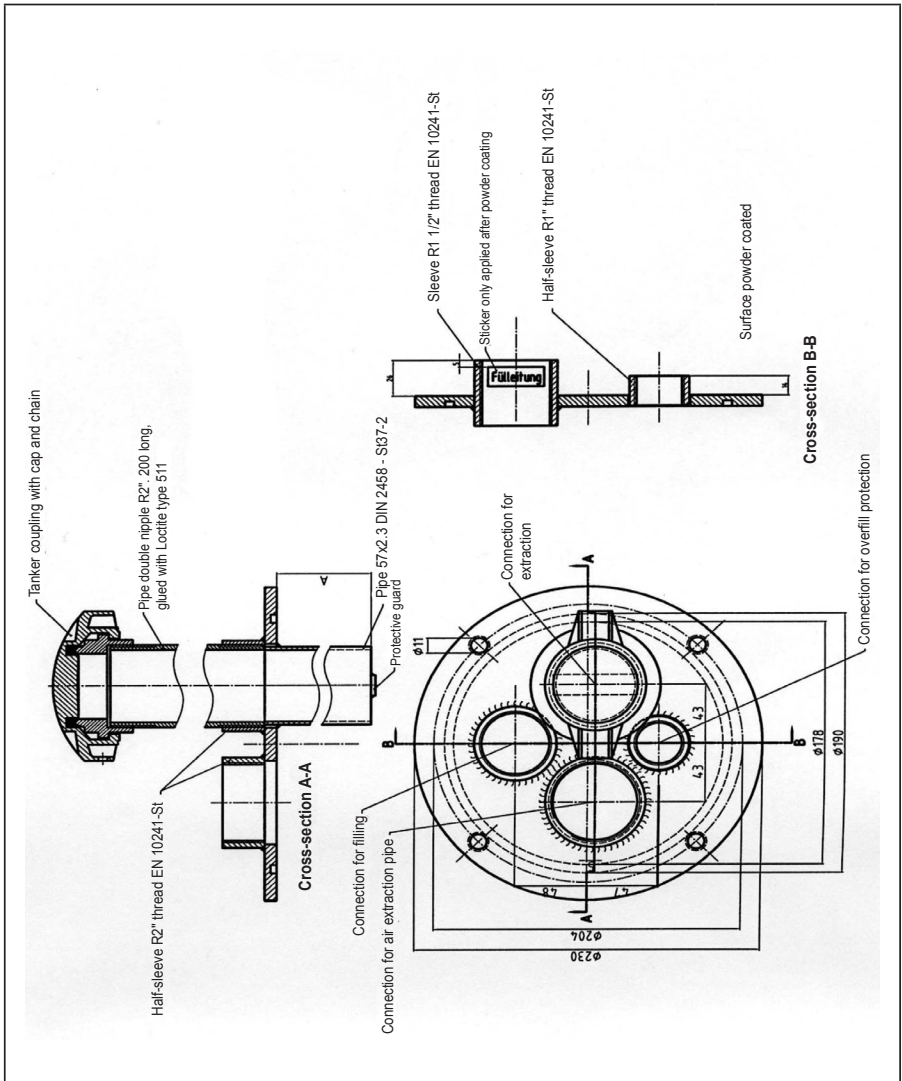
Annex 1.5



Rotational-moulded container combination made from polyethylene (PE)
 Type: CUBE Tank 2000 l

Full dome lid for single tank installation

Annex 1.6



Rotational-moulded container combination made from polyethylene (PE)
 Type: CUBE Tank 2000 I

Full dome lid for used oil tank, single tank installation

Annex 1.7

Rotational-moulded container combination made from polyethylene (PE) Type: CUBE Tank 2000 I **Annex 2**

Materials

1 Moulding compounds for container/container combination

(1) Only the moulding compound detailed in Table 1 below with the material properties described therein may be used to manufacture the containers (inner container and collection container).

Table 1: Moulding compounds, material properties

Type designation, manufacturer	MFR 190/2.16 in g/10 min	Density at 23°C in g/cm ³	General Technical Approval No.
Resinex RX103 Dow Europe GmbH	3.85 ± 0.35	0.939 ± 0.002	Z-40.25-384
Matrix Revolve 5056/N-307 Matrix Polymers Ltd	3.5 ± 0.5	0.939 ± 0.01	Z-40.25-496

(2) Regranulate of this material is excluded from use. Each moulding compound must be processed with at least 70% virgin material and a maximum of 30% single-origin return compound. Mixing the different moulding compounds with one another is not permitted.

(3) To manufacture the inner container and the collection container, the UV-stabilised coloured version of the moulding compound in accordance with Table 1 must be used (max. 1.0 vol.-% colour batch grey) and must comply with the information submitted to the Deutsches Institut für Bautechnik.

2 Dome lid

The structural details and materials must comply with Annexes 1.5 to 1.7 and the information submitted to the Deutsches Institut für Bautechnik.

3 Bindings

The bindings must comply with Annex 1.4 and the information submitted to the Deutsches Institut für Bautechnik and the requirements listed below.

Pipes: Ø 48.3 x 3.25 mm – DIN EN 10255¹; hot-dip galvanised in accordance with DIN EN ISO 1461²

Material: S195, material number: 1.0035

Pipe bends: Ø 40.0 x 3.0 mm – DIN EN 10305-3³; hot-dip galvanised in accordance with DIN EN ISO 1461

Material: E235, material number: 1.0308

¹ DIN EN 10255:2007-07

Non-alloy steel tubes suitable for welding and threading - Technical delivery conditions; German version EN 10255:2004 + A1:2007

² DIN EN ISO 1461:2009-10

Hot dip galvanised coatings on fabricated iron and steel articles – Specifications and test methods (ISO 1461:2009); German version EN ISO 1461: 2009

³ DIN EN 10305-3:2010-05

Steel tubes for precision applications - Technical delivery conditions - Part 3: Welded cold sized tubes; German version EN 10305-3:2010

Rotational-moulded container combination made from polyethylene (PE) Type: CUBE Tank 2000 I **Annex 3**

Packaging, transportation and storage

1 Packaging

It is not necessary to package the containers for transportation or for (temporary) storage, provided the requirements set out in Section 2 are met. All nozzle openings must be closed using the screw caps.

2 Transportation/storage

2.1 General provisions

The containers may only be transported by companies with professional experience, appropriate equipment, facilities and means of transportation, and adequately trained personnel. The relevant accident prevention regulations are to be observed to avoid any risk for employees and third parties.

2.2 Transportation preparation

(1) The containers are to be prepared for transportation in such a way that they cannot be damaged during loading, transportation and unloading.

(2) The loading area of the vehicle used for transportation must be designed in such a way that the containers cannot be damaged by point impacts or loads.

2.3 Loading and unloading

(1) When hoisting, moving and lowering the containers, impact-type loads must be avoided.

(2) If a forklift truck is used, the container must be secured while it is being transported on the forklift truck.

(3) Nozzles and other protruding parts of the container must not be used for the purposes of securing or hoisting the container. It is not permitted to drag containers across the ground.

2.4 Transportation

(1) The containers must be secured against movement during transportation.

(2) The method used to secure the container must not result in it becoming damaged.

2.5 Storage

(1) Where containers are being temporarily stored in outdoor areas, they must be protected against damage and the effects of storms. The inner containers must not be exposed to outdoor weathering for more than 6 months.

(2) It is essential to ensure that no rainwater is able to penetrate between the inner container and the collection container.

2.6 Damage

Where damage has occurred during transportation or temporary storage, the containers should be handled in accordance with the findings of an expert⁴ in the field of plastics, with the assistance of the applicant where appropriate.

⁴ Experts from certification and inspection bodies and other experts determined by the Deutsches Institut für Bautechnik upon request

Rotational-moulded container combination made from polyethylene (PE) Type: CUBE Tank 2000 I
Annex 4
Page 1 of 2
Certificate of conformity

1 Factory production control

1.1 Materials

(1) As part of the receiving inspections of the raw materials, using the German mark of conformity (Ü mark), the processor must verify that the materials comply with the properties stipulated in the material's General Technical Approval.

(2) The material used must be tested before and after processing in accordance with Table 1:

Table 1: Material tests and documentation

Object	Property	Test specification	Documentation	Frequency
Moulding compound	Trade name, designation of moulding compound according to DIN EN ISO 17855-1 ⁵	Annex 2 Section 1	Ü mark	Every consignment
	MFR, density			
Moulding material	MFR Yield stress Yield strain Tensile Young's modulus	Annex 4 Section 1.2	Record	after operational start-up, after change of batch, but at least 1x per week

(3) The average of three individual measurements must be calculated when determining each value.

1.2 Test specification for moulding material

The requirements referred to in Table 2 apply to rotational-moulded structural elements made of the moulding compounds referred to in Annex 2, Section 1.

Table 2: Test specifications for moulding materials

Property	Unit	Test standard	Requirement
MFR	g/(10 min)	DIN EN ISO 1133-1 ⁶ MFR 190/2.16	max. MFR = MFR 190/2.16 _(a) + 15%
Density	g/cm ³	DIN EN ISO 1183-1 ⁷	D _(e) = D _(a) ± 15%
Yield stress	N/mm ²	DIN EN ISO 527-1 ⁸ and -2 ⁹ (at 50 mm/min haul-off speed)	≥ 18
Yield strain	%		≥ 9
Tensile Young's modulus	N/mm ²	(at 1 mm/min)	≥ 680
Index a = Initial value according to the General Technical Approval for the moulding compound (moulding compound) Index e = measured value after processing (on the container)			

- 5 DIN EN ISO 17855-1:2015-02 Plastics – Polyethylene (PE) moulding and extrusion materials – Part 1: Designation system and basis for specifications
- 6 DIN EN ISO 1133-1:2022-10 Plastics – Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics – Part 1: Standard method
- 7 DIN EN ISO 1183-1:2019-09 Plastics – Methods for determining the density of non-cellular plastics – Part 1: Immersion method, liquid pycnometer method and titration method
- 8 DIN EN ISO 527-1:2019-12 Plastics – Determination of tensile properties – Part 1: General principles
- 9 DIN EN ISO 527-2:2012-06 Plastics – Determination of tensile properties – Part 2: Test conditions for moulding and extrusion compounds

Rotational-moulded container combination made from
polyethylene (PE) Type: CUBE Tank 2000 I

Annex 4
Page 2 of 2

Certificate of conformity

1.3 Container

(1) The tests described in Table 3 must be carried out on the containers, in compliance with the measured values detailed in the tables.

Table 3: Tests and test specification

Property	Test specification	Documentation	Frequency
Surfaces	Based on DVS 2206-1 ¹⁰	Record	every container
Wall thicknesses, container masses,	see Table 4 of this Annex		
Tightness	see Section 1.3(2) of this Annex		

Table 4: Minimum wall thickness/container mass

Property	Measuring point/ stipulation	Measured value	
		Inner container	Collection container
Wall thickness in mm	Tank base	5.9	3.0
	Top of tank	5.0	-
	Side walls	5.1	2.7
Minimum mass in kg	Container without fixtures	74.0	39.4

(2) The test pressure must be set at 1.3x the static pressure of the liquid to be stored, but at least that of water, relative to the bottom of the container.

1.4 Bindings

(1) The requirements of Annex 2, Section 2 apply.

(2) The compliance of the bindings with the requirements set out in Annex 2, Section 3 is to be proven by means of an acceptance test certificate 3.1, in accordance with DIN EN 10204.

¹⁰ Data sheet DVS 2206-1:2011-09 Non-destructive tests on tanks, apparatus and piping made of thermoplastics - Dimensional checking and visual inspection

Rotational-moulded container combination made from polyethylene (PE) Type: CUBE Tank 2000 I **Annex 5**
Permissible fill level

(1) When establishing the permissible fill level, the cubic expansion coefficient α of the liquids with which the container is to be filled must be taken into account, together with the possible increase in temperature of the liquid above the filling temperature during storage and the associated increase in the volume of the liquid.

(2) When storing water-polluting liquids that do not present any additional hazardous properties, the permissible fill level at the filling temperature is to be established as follows:

$$\text{Fill level} = \frac{100}{1 + \alpha \cdot 35} \text{ in \% of the tank capacity}$$

For $\alpha \leq 1.5 \cdot 10^{-3}/\text{K}$, a fill level of 95% can be viewed as sufficient.

The mean cubic expansion coefficient α can be established as follows:

$$\alpha = \frac{d_{15} - d_{50}}{35 \cdot d_{50}}$$

d_{15} = density of the liquid at +15°C

d_{50} = density of the liquid at +50°C

(3) In the case of liquids for which the filling temperature is more than 35 K below the maximum permitted operating temperature, the resulting expansion must be taken into account when establishing the fill level.

(4) Where containers are used to store water-polluting liquids that are classified as toxic or corrosive, a fill level must be maintained that is at least 3% lower than that determined on the basis of Paragraph (2).

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Tento návod platí pro nádrže CEMO – CUBE podle všeobecného schválení stavebního dozoru Z-40.21-593

Pokud tuto nádrž provozujete v souladu s normou EN 13341, musí být značka Ů na typovém štítku zakryta přiloženou nálepkou s označením CE.

1. Všeobecné informace

1.1 Podklady, které musejí být respektovány

- Atest pro nádrž CUBE
- Návod k provozu pro čerpací systémy (např. čerpadla a počítadla) výrobců příslušenství
- Návod k provozu pro pojistku proti přeplnění (snímač mezní hodnoty)
- Návod k provozu pro detekční sondu úniku
- Dále je třeba dodržovat ustanovení vodního, živnostenského a stavebního zákona.

1.2 Použití

Nádrž CUBE 2 000 litrů je průmyslově vyrobená nádrž, která se skládá z vnitřní nádrže vyrobené metodou rotačního tváření přibližně krychlového tvaru a obvodové vnější nádrže, která slouží jako záchytná vana, a společně tvoří kombinovanou nádrž z polyetylénu (LLD-PE). Nádrž CUBE 2 000 litrů je určena k beztlakému skladování:

- motorové nafty,
- bionafty,
- mazacích prostředků,
- čistého roztoku močoviny 32,5 % (např. AdBlue®) a dalších skladovaných médií podle všeobecného schválení stavebního dozoru Z-40.21-593.

Přípustná provozní teplota činí 40 °C.

Nádrž CUBE 2 000 l je již z výroby vybavena indikátorem obsahu a sondou úniku.

2. Podmínky instalace

Podmínky instalace k použití s příslušnými médii si vyhledejte ve vodoprávních, živnostenských a stavebně právních předpisech. Nádrže lze postavit pouze v prostorách budov a ve venkovních prostorech, ne však v oblastech ohrožených výbuchem zón 0 a 1. V zátopových oblastech je nádrže třeba umístit tak, aby nemohly být zaplaveny vodou. Před uvedením do provozu musí provozovatel opatřit nádrž štítkem, na kterém je uvedena skladovná kapalina, její hustota a koncentrace.

3. Přeprava



Pozor!

Nádrže CUBE přepravujte a pohybuje s nimi, pouze pokud jsou v prázdném stavu!

Nádrže CUBE se z důvodu ochrany před mechanickým poškozením dodávají zabalené v ochranné fólii a umístěné na přepravní paletě. Aby nedocházelo k poškození a za účelem udržení nároků na záruku je vždy třeba dodržovat tyto pokyny:

- Přeprava a skladování **JEN** v originálním obalu
 - Nádrž nenechte spadnout a neházejte s ní
 - Nepokládejte ji na hrany ani na špičaté předměty
 - Přepravní obal odstraňte až v místě instalace
- Pokud byste i přesto objevili poškození, informujte prosím naši službu zákazníkům!

4. Instalace nádrží

Při instalaci nádrží dbejte na dobrou stabilitu. Nádrž musí rovnoměrně doléhat na podklad a stát svisle. Podkladová plocha musí být rovná a nesmí mít žádné hrany a nerovnosti. Před instalací nádrže je třeba ji řádně vyčistit. Nádrže musí být od stěn, jiných stavebních součástí a od sebe navzájem umístěny v takové vzdálenosti, aby bylo kdykoliv možné zjistit výšku hladiny, únik kapaliny a provést vizuální kontrolu stavu nádrže.

4.1 Instalace ve venkovním prostoru

Nádrže CUBE jsou schváleny pro instalaci ve venkovním prostoru. Při instalaci venku se musí nádrže instalovat tak, aby nemohlo docházet k nepřípustným zatížením větrem a účinky jiných povětrnostních vlivů (srážky, zatížení sněhem, sluneční svit) byly co nejvíce omezeny. Plocha se musí před instalací venku navíc upravit vodotěsně a podle silničního stavitelství. V této souvislosti dodržujte prosím také odstavec 3.2.3.1 všeobecného povolení stavebního dozoru / všeobecného povolení stavebního způsobu Z-40.21-593.

4.2 Ochrana před najetím

Nádrže CUBE je nutné chránit před najetím vozidel a vandalismem, např. umístěním na chráněném místě, opatřením ochranou před najetím nebo instalací ve vhodném prostoru.

V této souvislosti dodržuje prosím také odstavec 3.1 (4) všeobecného schválení stavebního dozoru / všeobecného povolení stavebního způsobu Z-40.21-593.

5. Plnicí a odběrné systémy

Plnicí a odběrné systémy se dodávají jako schválené příslušenství v balíčcích příslušenství. Ke komponentám příslušenství jsou přiloženy příslušné návody k montáži a provozu.

Vždy kontrolujte těsnost všech šroubových spojení!

5.1 Pojistka proti přeplnění (snímač mezní hodnoty) motorovou naftou

(Výrobce: Wilhelm Keller GmbH&Co.KG)

- ▶ Montáž podle pokynů výrobce příslušenství v balení příslušenství

5.2 Plnicí a odběrné armatury pro jednotlivé nádrže CEMO

- 5.2.1 Poklop dómu se 4 přímými závitovými hrdly, např. pro čerstvý olej, topný olej atd.

Montáž podle výkresu č. 130.0039.111 na straně 7

- Do závitového hrdla R 1 1/2" našroubujte armaturu pro odčerpávání topného oleje. Před instalací může být nutné upravit délku sací hadice.
- Do závitového hrdla R 1" našroubujte snímač mezní hodnoty
- K přípojovacímu hrdlu R 2" vyčnívajícímu do nádrže (viz štítek) přimontujte plnicí potrubí.
- Do závitového hrdla R 2" našroubujte odvodušňovací potrubí

- 5.2.2 Poklop dómu se 2 šikmými závitovými nástavci a 2 přímými závitovými hrdly

Montáž podle výkresu č. 130.0049.121 na straně 7

- ▶ např. pro motorovou naftu, čerstvý olej atd.
- Do svisle umístěného závitového hrdla R 2" namontujte sací potrubí nebo čerpadlo.
- Do závitového hrdla R 1" našroubujte snímač mezní hodnoty.
- K přípojovacímu hrdlu R 2" vyčnívajícímu do nádrže (viz štítek) přimontujte plnicí potrubí.
- K přípojovacímu hrdlu R 2" přimontujte odvodušňovací potrubí.

5.2.3 Poklop dómu se sacím potrubím pro použitý olej:

Montáž podle výkresu č. 130.0059.181 resp. 134.0059.181 na straně 7

- K odsávací trubce přišroubujte dvojitou vsuvku se spojkou cisternového vozu s hrdlem R 2".
- Do závitového hrdla R 1" našroubujte snímač mezní hodnoty.
- K připojovacímu hrdlu R1½" vyčnívajícím do nádrže (viz štítek) přimontujte plnicí potrubí.
- K připojovacímu hrdlu R 2" přimontujte odvzdušňovací potrubí.

5.3 Zavzdušňovací a odvzdušňovací potrubí

U nádrží CUBE, které se instalují ve venkovním prostředí, je součástí balíčků příslušenství odvzdušňovací hříbovitý prvek (2").

U nádrží CUBE, které se instalují v budovách, se musí odvzdušňovací potrubí vyvést do volného prostoru ze strany stavby. V této souvislosti dodržuje prosím také odstavec 3.2.3.2 všeobecného povolení stavebního dozoru Z-40.21-593.

6. Provoz

6.1 Provoz v topných systémech a nádržích na motorovou naftu

6.1.1 Plnění

- Pro účely zkoušek před uvedením do provozu odkazujeme na odstavec 4.3 všeobecného schválení stavebního dozoru / všeobecného povolení stavebního způsobu Z-40.21-593.
- Při prvním plnění se musí přezkoušet těsnost celého zařízení.
- Nádrž CUBE 2 000 l se smí plnit jen pomocí pevných přípojek a za použití vhodné pojistky proti přeplnění (snímač mezní hodnoty).

6.1.2 Odběr

Odběr se provádí prostřednictvím čerpadla, čerpací hadice a čerpacího ventilu. Dbejte prosím na dostatečné zavzdušnění a odvzdušnění. Řiďte se prosím rovněž pokyny uvedenými v návodech k montáži a provozu komponent příslušenství.

6.2 Provoz s ostatními přípustnými médii dle všeobecného schválení stavebního dozoru

Je nutno dodržovat odstavec 4.1.4 všeobecného schválení stavebního dozoru / všeobecného povolení stavebního způsobu Z-40.21-593 stejně jako návody k provozu pro komponenty příslušenství a právní předpisy týkající se ochrany vody a hořlavých kapalin.

6.3 Údržba a čištění nádrží CUBE

Nádrže CUBE nevyžadují žádná zvláštní opatření, pokud jde o údržbu. Antikorozní prostředky nejsou nutné.

Díky dobrým vlastnostem nádrží CUBE dochází pouze k nepatrné kondenzaci vody. Olejový kal se musí pomocí sondy odsát inspekčním otvorem, dříve než dosáhne k odsávací hadici.

7. Pojistky proti přeplnění

Pokud je podle platného práva u nádrží pro skladování kapalin ohrožujících vodu nutné umístění pojistek proti přeplnění nebo snímačů mezní hodnoty, lze je instalovat následujícím způsobem:

7.1 Nádrže CUBE pro skladování topného oleje a motorové nafty

Balíčky příslušenství pro tyto nádrže obsahují schválenou pojistku proti přeplnění (snímač mezní hodnoty) a návod k instalaci.

7.2 Nádrže CUBE pro skladování mazacích prostředků a čistého roztoku močoviny 32,5% (např. AdBlue®)

Pro tyto nádrže jsou jako příslušenství nabízeny schválené pojistky proti přeplnění s výstražnými zařízeními.

7.3 Nádrže CUBE pro skladování ostatních médií

Nádrže CUBE se k tomu účelu musí vybavit schválenými pojistkami proti přeplnění s výstražnými zařízeními. Dodržujte montážní pokyny.

8. Záruka

Záruku za kvalitu materiálu a bezvadné zpracování přebíráme dle záručních podmínek CEMO. Předpokladem pro záruku a nároky ze záruky je přesné dodržování přiloženého návodu k přepravě, montáži a provozu a platných předpisů ve všech bodech.

9. Osvědčení o přijímací zkoušce

Osvědčení o přijímací zkoušce dle DIN EN 10204 3.1 pro nádrže CUBE

z polyetylénu (LLD-PE) pro beztlakové skladování médií dle všeobecného schválení stavebního dozoru Z-40.21-593 a EN 13341.

Objem nádrže: **2000 litrů**

Rok výroby: **viz zadní strana**

Výrobní č.: **viz zadní strana**

Potvrzujeme, že nádrž byla zkontrolována dle příslušných požadavků všeobecně platného povolení stavebního dozoru Z-40.21-593 a EN 13341 a že byla vyrobena v souladu s ustanoveními všeobecně platného povolení stavebního dozoru Z-40.21-593 a EN 13341.

Kontrola výroby:

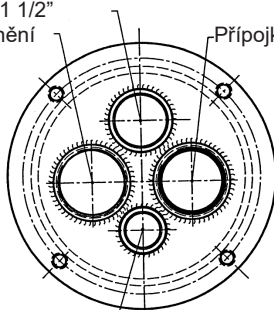
viz zadní strana
CEMO GmbH

10. Poklop dómu

Výkres č. 130.0039.111

Poklop dómu pro bezpečnostní nádrž CEMO (jednotlivá nádrž) pro skladování topného oleje / čerstvého oleje

Odběrná přípojka R 1 1/2"
Přípojka R 2" pro odvědušnění



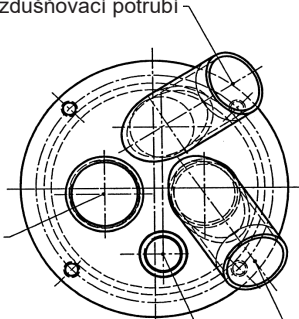
Přípojka R 1" pro snímač mezní hodnoty

Výkres č. 130.0049.121

Poklop dómu pro bezpečnostní nádrž CEMO (jednotlivá nádrž) pro skladování motorové nafty / čerstvého oleje

Přípojka R 2" pro odvědušňovací potrubí

Odběrná přípojka R 2"

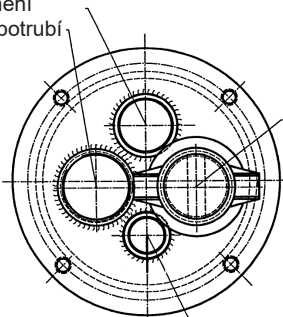


Přípojka R 2" pro plnění
Přípojka R 1" pro snímač mezní hodnoty

Výkres č. 130.0059.181 resp. 134.0059.181

Poklop dómu pro bezpečnostní nádrž CEMO (jednotlivá nádrž) pro skladování použitého oleje

Přípojka R 1 1/2" pro plnění
Přípojka R 2" pro odvědušňovací potrubí



Odběrná přípojka se spojkou cisternového vozu

Přípojka R 1" pro pojistku proti přeplnění



Produktinformation



Die im Folgenden aufgeführten Tank-Typen

CUBE-Tank

aus rotationsgeformtem Polyethylen mit integrierter Aufangwanne, für die Lagerung von Haushalts-Heizölen und Dieseldieselfuelen in Innenräumen, stimmen mit den Anforderungen der Norm **EN 13341** überein.

Übersicht der wesentlichen Eigenschaften unserer Tanks, entsprechend der Norm **EN 13341**

	Typ	CUBE-Tank 2000
Fassungsvolumen		2380 l
Nutzvolumen		2280 l
Mechanische Festigkeit und Standsfestigkeit:		
Masse des Innenbehälters (kg)		58,0
Wanddicke (mm)		3,5
Schmelzindex		Bestanden
Dichte		Bestanden
Zugfestigkeit		Bestanden
Brandverhalten		E
Durchlässigkeit:		
Druckfestigkeit		Bestanden
Schlagfestigkeit		Bestanden
Medienbeständigkeit		Bestanden
Dichtheit		Bestanden
Bewertungstest bei Aufstellung in Innenräumen		Keine Leistung bestimmt



Product information



The following tank types

CUBE-Tank

made of rotation-moulded polyethylene with integrated collecting pans for the indoor storage of domestic heating oils and diesel fuels, comply with the requirements of **EN 13341**.

Overview of the key properties of our tanks according to **EN 13341**

	TYPE	CUBE-Tank 2000
Brimful capacity		2380 l
maximum filling capacity (95%)		2280 l
Mechanical strength and stability:		
Mass of the inner container [kg]		58,0
Wall thickness [mm]		3,5
Melt flow index		Passed
Density		Passed
Tensile strength		Passed
Fire behaviour		E
Permeability:		
Compressive strength		Passed
Impact resistance		Passed
Chemical resistance		Passed
Leak tightness		Passed
Durability in indoor installations		No performance defined

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Information sur le produit



Les types de cuves mentionnées ci-après

CUBE-Tank

en polyéthylène moulé par rotation dans un bac de rétention intégré, destinées au stockage de fuel domestique et aux carburants diesel dans des locaux fermés, répondent aux exigences de la norme EN 13341.

Récapitulatif des propriétés essentielles de nos cuves correspondant à la norme EN 13341

TYP	CUBE-Tank 2000
capacité à ras bords	2380 l
capacité max. de remplissage (95%)	2260 l
Résistance mécanique et stabilité :	
Masse de la cuve intérieure [kg]	58,0
Épaisseur [mm]	3,5
Indice de fusion	Réussie
Densité	Réussie
Résistance à la traction	Réussie
Comportement au feu	E
Perméabilité :	
Résistance à la pression	Réussie
Résistance aux chocs	Réussie
Résistance aux fluides	Réussie
Étanchéité	Réussie
Résistance aux intempéries en cas d'installation dans des locaux fermés	Aucune performance définie

IT

Informazione sul prodotto



Di serbatoio di seguito elencati

CUBE-Tank

in polietilene con un processo di rotazione con un vasca di raccolta integrata, per lo stoccaggio del gasolio per il riscaldamento domestico e del combustibile diesel all'interno, con i requisiti della norma EN 13341.

Panoramica delle caratteristiche principali dei nostri serbatoi, secondo la norma EN 13341

	CUBE-Tank 2000
Capacità (Volume)	2380 l
Max. potere riempitivo (95%)	2260 l
Resistenza meccanica e stabilità:	
Massa del serbatoio inter. [kg]	58,0
spessore della parete [mm]	3,5
Indice di fluidità	superato
Ermelicità	superato
Resistenza alla trazione	superato
Comportamento alla combustione	E
Permeabilità:	
Resistenza alla pressione	superato
Resistenza agli urti	superato
Resistenza al medio	superato
Ermelicità	superato
Test atmosferici a installazione interna	Nessuna prestazione definita

Abnahmeprüfzeugnis nach DIN EN 10204 3.1 für CUBE-Tanks

aus Polyethylen (LLD-PE) für die drucklose Lagerung von Medien entsprechend der allgemeinen bauaufsichtlichen Zulassung Z-40.21-593 und der EN 13341.

Behälterinhalt : **2000 ltr**

Baujahr :

Herstell-Nr. :

Wir bescheinigen, dass der Behälter entsprechend den Anforderungen der allgemeinen bauaufsichtlichen Zulassung Z-40.21-593 und der EN 13341 erfolgreich geprüft wurde und dass die Herstellung des Tanks entsprechend den Vorgaben der allgemeinen bauaufsichtlichen Zulassung Z-40.21-593 und der EN 13341 erfolgte.

Werksprüfer:

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CEMO GmbH