Installation instructions

FRANK chamber series 400 and 500

General information

- FRANK chambers are factory assembled and are supplied with pressure-tested manifolds.
- The chambers are designed for connecting geothermal probes, geothermal collectors and energy cages.
- No liability shall be assumed in the case of incorrect use or modifications of the product.

Do not use the pipe spigots as grips. Do not use pipes and valves as climbing aids.

To be agreed before installation:

- Clarify the traffic load prior to installation.
- The use of the chamber in groundwater, stratum water or slack water is only permitted if this has been taken into account in its static design.
- For installation in groundwater/stratum water, buoyancy protection may need to be provided by the client.
- Agree on the installation depth on the later top ground surface. For chambers with a telescopic plate, the dimensions of the variable height adjustment must be taken into account.

Bedding and installation

- The subsoil must have sufficient load capacity.
- The base of the trench and the soil surrounding the tank must be permeable.
- The contact surface of the chamber (granular subbase) must be horizontal and level.
- The working area must be measured in such a way as to provide a stress-free alignment of the pipe connections. The minimum working area width is 500 mm.

Pipe connection

- The pipe lines must be connected to provide a permanent, stress-free connection.
- The circuit and heat pump lines are connected using welded fittings.
- The DVS guideline 2207 must be observed for the welding work.
- When using electro fusion fittings, remove the oxide layer of the pipe spigots using a rotational scraper.
- The Type 540 chamber enables you to connect the heat pump line on the left or right:

  To do so, cut off the blanking plug on the required connection side and then prepare the pipe spigot for welding.

Backfilling

- Use graded, non-cohesive material for backfilling. Requirements according to ATV 127: soil group G1 (SW, SI, SE, GW, GI and GE) or G2 (GU, GT, SU, ST).
- The material used for filling must be compressible, permeable, shearing resistant, frost-proof and free of sharp objects.
- The maximum particle size of rounded gravel material must be no larger than 22 mm and 11 mm if broken material is used (crushed sand/grit mixture).
- Cohesive soils are not suitable for backfilling.
- Place the backfill material carefully and evenly in several layers around the chamber and compact with 1–2 steps per layer (see ATV A 139 / DIN EN 1610).
- During backfilling, make sure that the pipe connections are stress-free and permanently mounted.
- Use only hand tampers to compact the filling material near the pipe connections.
- Maintain a sufficient distance if using a heavy compactor (e.g. vibrating rollers).

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Last updated 10/2019 | Subject to technical changes

Height-adjustable telescopic section:

- For chambers with a telescopic section, the end height of the chamber cover plate is variable within the adjustment range Δh. (See figure 1).

  The telescopic section can be mounted later on:

  - Unscrew the screws and remove the chamber cover plate
  - Insert the sealing into the groove on the inside of the telescopic section.
  - Lubricate Sealing / Chamber dome
  - Before mounting the telescopic section, check that the chamber dome is clean and check the seal.
    - o Apply lubricant (grease, silicone spray) to seal
  - Place the telescopic section on the chamber dome and push it down to the required height.
  - The chamber cover must not be covered with soil.

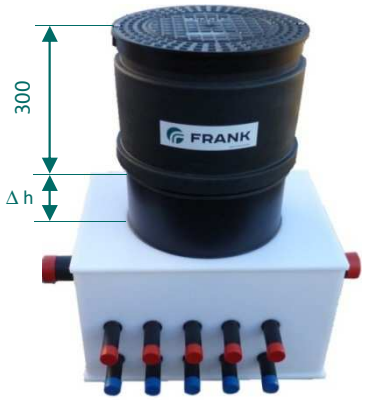

Figure 1: Example of 540 type manhole

Establishing the load capacity of the telescopic section:

- To ensure the smooth transfer of load, the telescopic section must be supported.
  (If necessary, using grit, sand or lean concrete).
- The backfill material must be compacted to ensure sufficient load capacity.
- For a load capacity greater than 200 kg, a PE load distribution ring must be used.
- The PE load distribution ring is assembled below the telescopic section and supported to make it load bearing (figure 2).

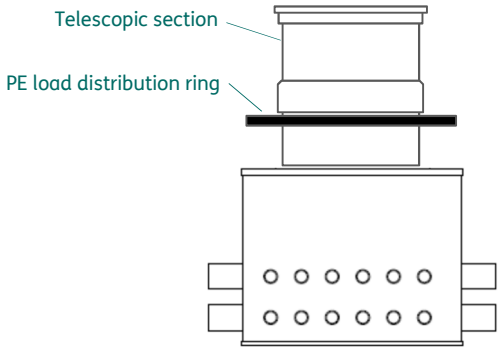

Figure 2

Technical data:	
Max. working temperature	-10 °C to + 40 °C
Operating pressure	max. 3 bar
Test pressure	max. 6 bar

No construction vehicles must run up to or over the chamber.

Before closing the chamber, clean the seals and contact surfaces of the cover.

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Applicable standards and regulations:

- Existing standards and regulations must be observed for the planning and installation of a chamber.
- The accident prevention regulations must also be observed.

Standards and regulations	Contents
ATV A 127	Static Calculation for the Rehabilitation of Drains and Sewers
ATV A 139	Installation and Testing of Drains and Sewers
DIN EN 1610	Construction and Testing of Drains and Sewers
DIN 18196	Earthworks and Foundations - Soil Classification for Civil Engineering Purposes
DIN 1054	Subsoil - Verification of the Safety of Earthworks and Foundations
DIN 4123	Excavations, Foundations and Underpinnings in the Area of Existing Buildings
DIN 4124	Excavations and Trenches - Slopes, Planking and Strutting Breadths of Working Spaces
DIN 4084	Soil - Calculation of Embankment Failure and Overall Stability of Retaining Structures
DIN 18920	Vegetation Technology in Landscaping - Protection of Trees, Plantations and Vegetation Areas During Construction Work
DVGW W400-2	Engineering rules for water supply systems

Standards for road construction:	
ZTVE-StB 94	German Technical Terms and Conditions of Contract and Guidelines for Earthworks in Road Construction
RSto	German guidelines for the standardisation of pavement structures of traffic areas

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