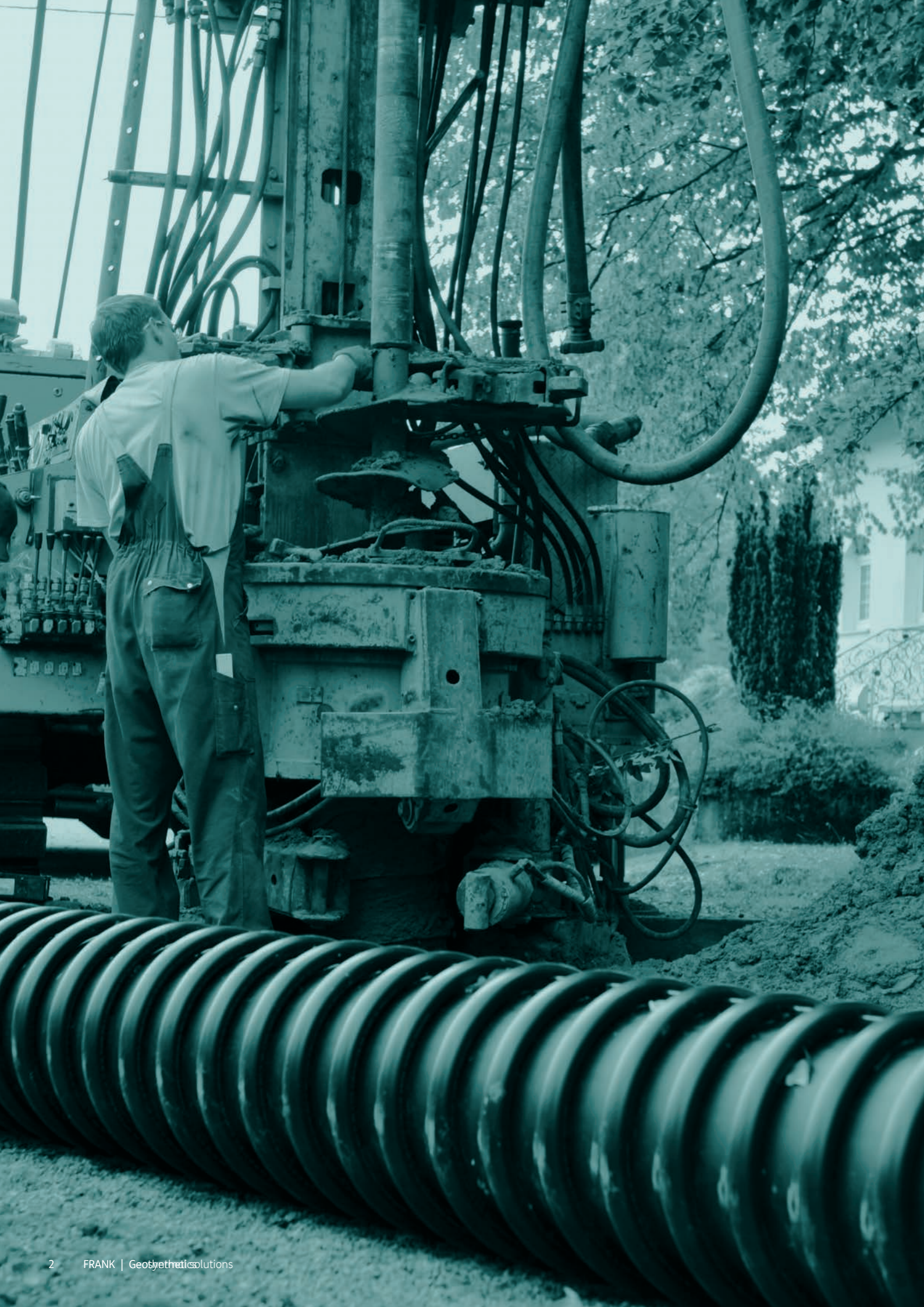




Energy from ground,  
wastewater, lakes and rivers  
FRANK GET System





# Geothermal energy

Renewable. Cost-effective. Future-proof.

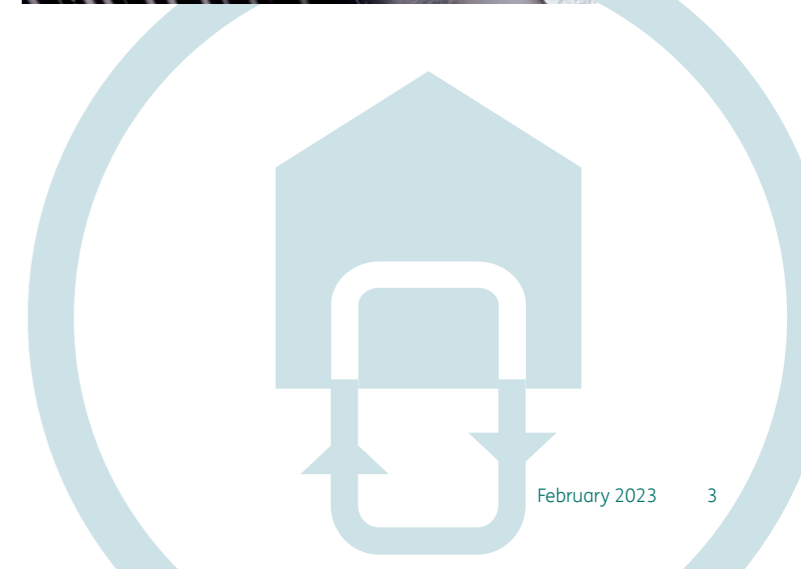
The ground under us stores a lot of energy, which is automatically renewed and is thus inexhaustible. This energy is known as geothermal energy. It is freely available and causes no emissions.

Make use of this form of renewable energy to heat and cool buildings, using advanced heat pump technology and probes by installing a FRANK GET system.

GET stands for Geothermal Environmental Technology, and the FRANK GET system offers a range of innovative solutions for the extraction of geothermal energy by means of special pipelines and ground source heat pumps.

Apart from the components required to extract the energy, such as geothermal probes, we also provide a wide range of manholes of any size and load class or manifolds – for any hydraulic requirements. All components are part of a modular system designed to distribute heat extracted from the natural environment.

Pipes, fittings, valves and welding technology: with the FRANK GET system, you can source everything you need for your geothermal installation from a single supplier. Including of course expert advice for planning and installation.





# Unrivalled safety for depths up to 400 m

FRANK geothermal probes made from quality materials

The underground temperature is more or less constant irrespective of the season. Geothermal energy is thus available all year round for the heating and cooling of

buildings, using geothermal probes. The probes are usually installed at a depth of between 50 and around 300 m underground. Once installed, these

probes cannot be easily accessed. As they need to work properly and efficiently for decades, geothermal probes must be of the highest possible quality.

## Geothermal probes made in PE 100-RC

### For reliable, safe and efficient operation

FRANK geothermal probes made from PE 100-RC are extremely durable and resistant to point loads and crack propagation. To achieve this consistent high quality standard we produce our probes on automated welding units specifically designed for this purpose. Our production processes conform to all relevant standards

as well as the SKZ Technical Code HR3.26 and is monitored by the State Materials Testing Institute Darmstadt. Given the excellent material properties of PE 100-RC, our probes offer a cost-effective and reliable solution for your geothermal installation.

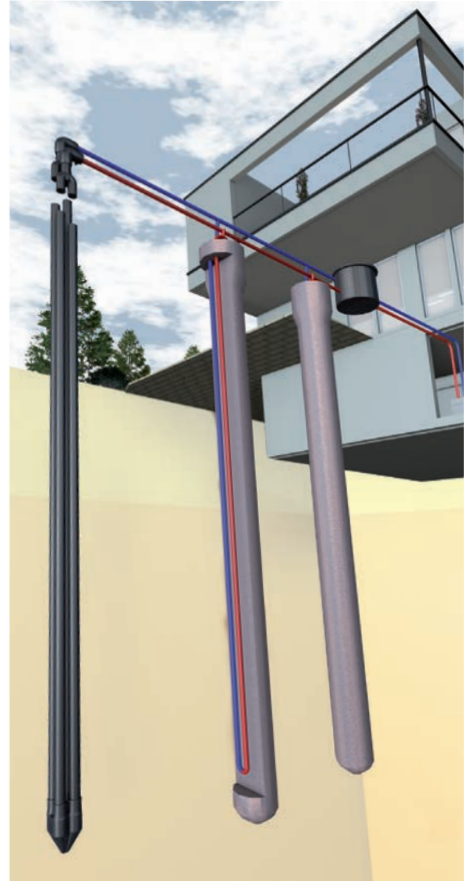
## FRANK GET-X geothermal probes made in PE-X

### The advanced solution

FRANK GET-X geothermal probes are made entirely from crosslinked polyethylene PE-X, a material that combines outstanding mechanical strength with resistance to temperatures up to 95° C. For these probes, the tried and tested FRANK SurePEX pipes are equipped with injection-moulded PE-X base elements that are fusion-welded at our factory. Thanks to their compact design, these



probes are particularly easy to install. FRANK GET-X geothermal probes are virtually immune to point loads, crack propagation and impact. The impact-proof probe base and the excellent material properties of the crosslinked plastic make the GET-X probes particularly suitable for use under extreme conditions. Given the thermal resistance of the GET-X probes, they are widely used in systems that include heat reservoirs or operate in conjunction with passive solar panels.



Technical data	For PE 100-RC and PE-X probes
Installation depth	50 to 400 m
Heating	yes
Cooling	yes
Special lengths	d 32 mm: 50, 60, 70, 80, 90, 100, 110 to 150 m d 40 mm: 50, 60, 70 to 180, 200, 220, 250, 275, 300 m Other lengths and SDRs available on request
max. permanent Temperature	PE 100-RC: +40 °C PE-X: +70 °C

All FRANK geothermal probes are factory-made to the required length. The streamlined probe bases are attached to the probe tubes by certified fusion welders.

# Great efficiency even at minimum depths

## FRANK VTP® - Vertical Thermpipe

The innovative FRANK VTP® (Vertical Thermpipe) is the ideal solution where conventional geothermal probes are not efficient: in case of low drilling depth.

Even where at depths of as little as 6 to 12 m, this solution offers great heat extraction rates, especially in areas where the groundwater table is high. As all elements are factory-assembled, installation is quick and cost-efficient: The FRANK VTP® can for instance be installed with a

hollow auger drill. The FRANK VTP® is made from PE 100. The medium pipe is firmly secured to the carrier tube, and the sturdy element can be placed in the boreholes without any further preparation.



Technical data	
Installation depth	to approx. 15 m
Heating	yes
Cooling	yes
Installation where drilling depth is limited	yes
Installation in area with high groundwater table	yes
Material	PE 100
Element length	6 / 9 / 12 m
VTP 260 medium pipe	d 25 mm, SDR 11
VTP 360 medium pipe	d 32 mm, SDR 11



# Using geothermal energy without drilling

## FRANK geothermal collector kit

Geothermal collectors are installed at a depth of 1.2 to 1.5 metres under ground. They normally extend over about 2 to 2.5 times the area of the building floor space to be heated. The actual size of the system is determined by a number of factors, such as the type of the soil, its water content and the sun exposure of the area.

With the FRANK geothermal collector kit, you get a tailor-made kit that includes everything you need for your specific project, from the manifolds and manholes to the collector pipes and fittings. The collector pipes made in high-grade PE 100-RC can be installed without a sand bed. The collector loops are connected to the manifold by means of electrofusion fittings.

Neat and simple: The pre-assembled manifold with shut-off and regulating valves is integrated into a compact box designed for wall mounting.



Collector pipe

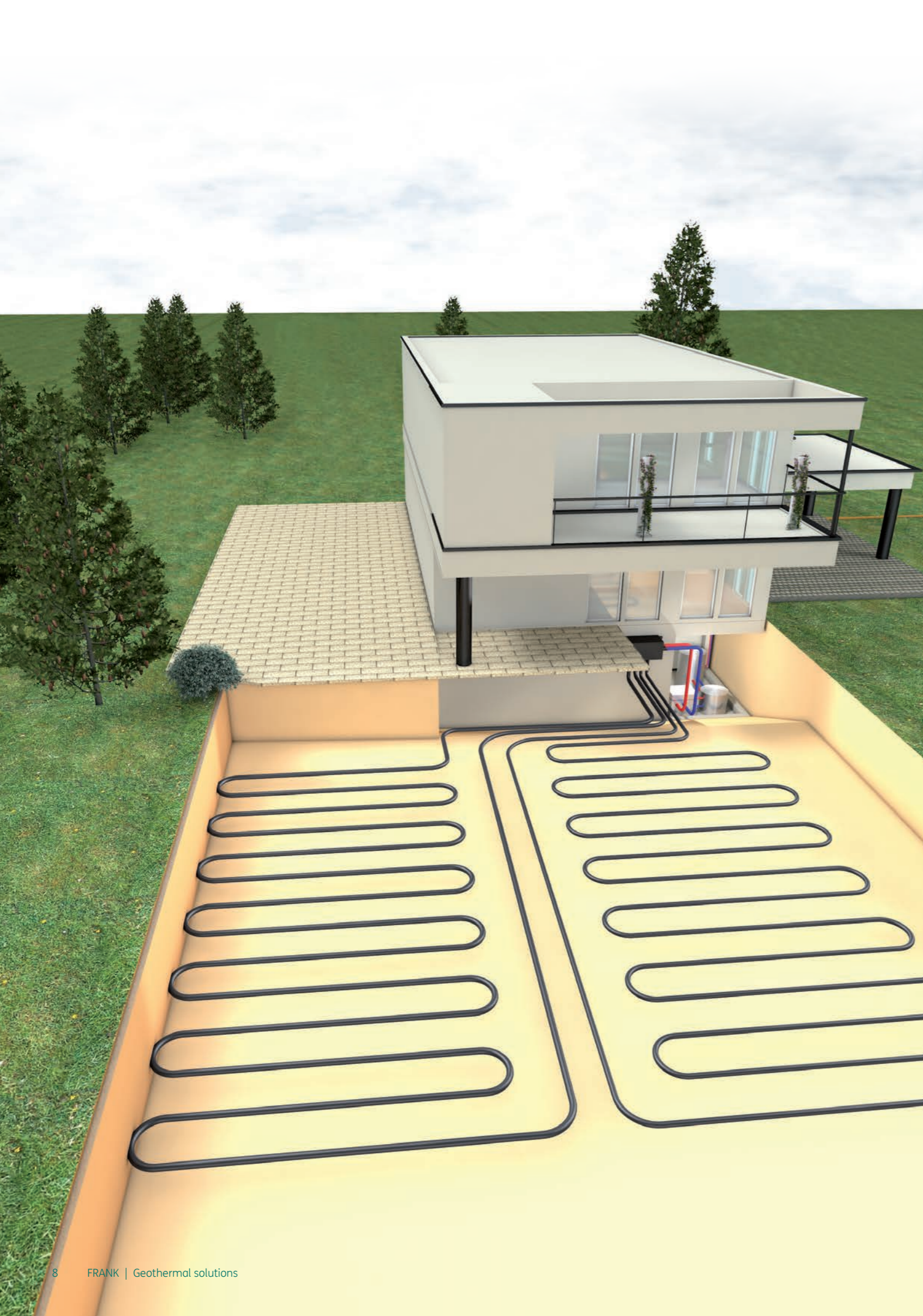


Connection fittings



Manifold box designed for wall installation

Technical data	
Installation depth	approx. 1.2 m to 1.5 m
Heating	yes
Cooling	to a limited degree
Installation where drilling depth is limited	yes
Installation in area with high groundwater table	yes
Pipe material	PE 100 RC
Length (pipe reel)	100 m
Diameter of medium pipe	d 32 mm, SDR 11
Temperature range	-20 to +40°C



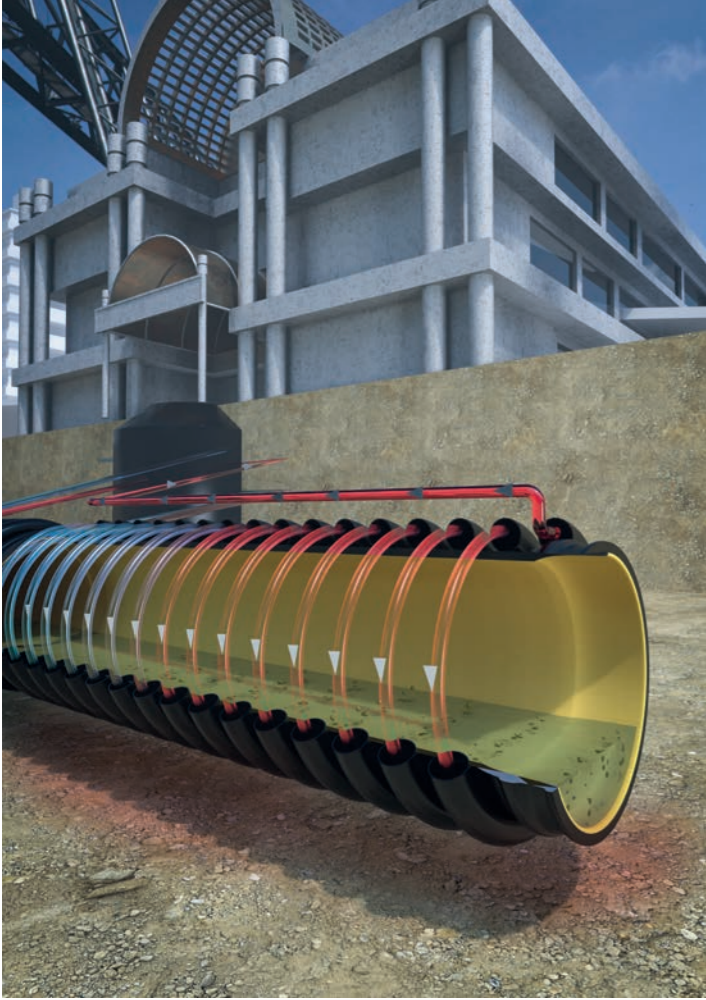
# Extracting energy from the ground and from wastewater pipes

## PKS-THERMPIPE®

The PKS-THERMPIPE® system does much more than transporting your wastewater safely to the sewerage system. The innovative solution could best be described a "horizontal geothermal probe with wastewater turbo charger", as the PKS-THERMPIPE® system also extracts heat from both the wastewater and the ground.

Wastewater in pipes does not only heat up the pipeline but also the ground around it. This energy is normally wasted. With the PKS-THERMPIPE® system, you can now extract it for your heating needs. A heat transfer medium is fed through a support pipe wound around the outer jacket of the sewage pipe. This medium extracts both the energy contained in the

wastewater and the ground surrounding the pipe. The advantages of tapping into two energy sources at the same time are obvious. The energy recovery from the ground makes the PKS-THERMPIPE® system independent of the actual wastewater load during the day, ensuring constant heat extraction.



- Requirements for wastewater energy recovery:**
- Densely developed residential or industrial area with relatively large wastewater volumes (dry weather flow  $\geq 15$  l/s).
  - Energy consumers with high heat requirements ( $\geq 50 - 200$  kW) such as schools, kindergartens, public administration offices, shopping centres, hospitals, hotels, public swimming pools, large residential apartment blocks, etc.
  - Relatively short distance (approx. 100 m, max. 500 m) between heat recovery plant and wastewater pipe
  - System temperature for heat recovery (return pipe) not exceeding 50 °C (the lower, the better)



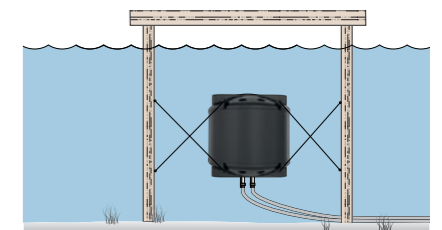
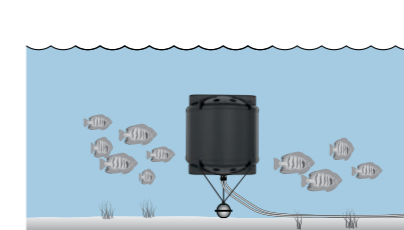
# Extract energy from lakes and rivers

## FRANK WET / Water heat exchanger

Waterbodies are excellent heat reservoirs. Use this free and renewable energy source to heat and cool buildings located near rivers or lakes.

The FRANK WET water heat exchanger is an energy recovery system specially designed for installation in lakes and rivers. Its compact, highly efficient heat exchanger turns the heat contained in the water into heating energy. The system works with a heat pump. The FRANK WET can of course also be used to cool buildings. Convection windows in the housing

of the unit ensure proper water circulation for high efficiency. The modular design with units in 3 sizes allows easy adaption to the required power. All components of the FRANK WET water heat exchanger are made from environmentally friendly high-grade polyethylene. Designed for a long service life without any corrosion.



The system is installed using anchor ballasts that are lowered to the bottom of the lake or river. Alternatively, it can be secured to posts, piers or docks (see figures). The PE pipes leading to the heat pump unit are securely connected by means of electrofusion welding.

# Example layout of a low temperature / brine local heating network



Several different types of ground source collector systems can be utilised in a low temperature / brine local heating network:

Geothermal probes, surface or agrothermal collectors, PKS-ThermPipe (for waste water heat utilisation) or also in combination with WET water heat exchangers.



# Shared ground loop

## The FRANK system for low temperature / brine local heating network

Geothermal Probes | Collectors | Chamber manifolds | Pipes | Fittings | Valves

When heating individual buildings, each heat pump has its own heat source. The economic solution of using heat pumps in local heating networks to supply entire neighbourhoods and settlements is becoming more and more widespread. In this case, the energy generated from one or more sources is distributed to the surrounding buildings in a heating network. In this way, geothermal energy can be used even in densely built-up settlements, for example, without having to develop a heat source on each individual property.

In a classic local heating network, heat is generated by a central heat pump. The heat is then distributed to the individual buildings at a high temperature level. In contrast, in a cold local heating network, the geothermal heat is distributed throughout the entire network at a low temperature level and is only brought to the required heating temperature in the buildings by a heat pump.

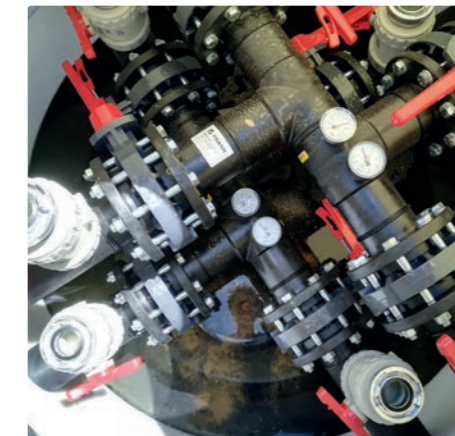
The low temperatures in the network prevent heat loss. The piping of the network even contributes significantly to the heat again. Another advantage is the possibility to cool buildings ecologically in summer.

**FRANK components for cold local heating networks are adapted to the specific requirements of modern networks:**

- Geothermal probes and collectors for supplying entire construction areas with sustainable thermal energy,
- factory-made chamber manifolds for connecting probe fields and agrothermal collectors,
- the suitable chamber for every section of the network,
- Pressure tapping valves for connecting the ring mains to the buildings,
- PE brine manifolds for pumping stations and heating centres,
- ThermLine pipes for ring and house connection lines,
- Comprehensive range of electrofusion and connection parts for the individual implementation of your building project.



Superordinate main chamber manifold



Inspection chamber



Chamber manifold with microbubble separator



ThermLine pipes | ThermLine loop pipes

FRANK-System	Dimensions [mm]
Inspection chambers	Pipes d 90 - d 250
Ventilation chambers	Pipes d 90 - d 250
House connection chambers	Pipes d 40 - d 90
Geothermal probe chamber manifolds	10 - 200 Circuits
Agrothermal chamber manifolds	6 - 40 Circuits
ThermLine-pipes	d 25 - d 400
Fittings / Electrofusion fittings	d 32 - d 355
DAV-pressure tapping valves	d 63 - d 355 / Exit d 32 - d 63

< **Do you have any questions? We will gladly advise you!** >

# Unrivalled efficiency thanks to optimised brine distribution

From the source to the heat pump

Proper brine distribution is crucial for the reliable and efficient operation of a geothermal system. The efficiency of the overall system is greatly influenced by the actual flow rates and pressure losses. In addition, it must be possible to quickly flush and bleed the installation. All manifold components must therefore be easily accessible for inspection and maintenance.

Our prefabricated manholes ensure just that and can be installed quickly and easily on site. As they come equipped with all necessary stop and regulating valves and have been tested for leakage, they guarantee long-term, trouble-free operation.

According to VDI-4640 Technical Code, geothermal probes must be connected in parallel to the manifold. To maintain uniform flow rates in systems with various line lengths, the entire pipeline system must be hydraulically balanced. For this purpose, all our manholes are equipped with special regulating valves.



# Overview chamber manifolds

Series		Wall mounting		Series 500		Series 500		Telescopic compact chambers manifolds		
 Design Type V    Design Type L										
Type		WM	L-560*	L-500* L-520*	L-540*	L-750-T*	L-800-T*	L-1200-T*	L-1400-T <b>NEW</b>	
Circuits		2-8	2-6	2-12 / 2-8	2-6	2-10	4-12	2-16	2-20	
Dimensions (mm)	Diameter / L x W	600-1200 x 230	500-750 x 360	500 x 500 / 650	500 x 500 / 650	750	738 x 803 / 873	1150	1400	
	Height (dep. on the number of circuits)	275	500	650	650	850-1000	850-1000	1350 - 1500	1600 - 1750	
Cover Plate	Load class	-	-	A 15	A 15	A 35 / B 125 / D 400	A 35 / B 125 / D 400	A 35 / B 125 / D 400	A 35 / B 125 / D 400	
	Telescopic cover	-	-	○	○	●	●	●	●	
Option balancing valve		-	○	○	○	○	○	○	○	

Series		Telescopic chamber manifolds				Heavy-duty spiral-sipe chambers		
 Design Type V    Design Type H								
Type		V-1200-T* V-1300-T*	H-1400-T*	H-1500-T*	H-1800-T	H-1500-WR*	H-1800-WR	Horizontal spiral pipe chamber manifold (Submarine)
Circuits		2-24	11-32	33-40	41-52	12-40	41-52	4-200
Dimensions (mm)	Diameter / L x W	1150	1400	1500	1800	1500	1800	1800 - 2200
	Height (dep. on the number of circuits)	1350 - 1600	1600-1750	1700 - 1850	2160	1850	2160	2000 - 2800
Cover Plate	Load class	A 35 / B 125 / D 400	A 35 / B 125 / D 400	A 35 / B 125 / D 400	A 35	D 400	D400	A 35 / B 125 / D 400
	Telescopic cover	●	●	●	●	-	-	○
Option balancing valve		○ up to 16 Circuits	○	○	○	○	○	○
with verifiable static calculation (up to SLW 60)		-	-	-	-	●	●	●

● = standard    ○ = optional

\* = CAD/ BIM Data via Homepage available

For a detailed overview of all equipment options and models, see the production information of the various chamber manifolds.

# Modular system or custom-engineered solution

## Ready-to-install brine manifolds

For the installation of brine manifolds in technical rooms or on-site concrete chambers, we can supply you with modular manifolds as an easy-to-assemble modular system.

The viable connection options for the brine circuits and the heatpump cover all possible requirements.

For larger systems, we manufacture individually welded manifolds made of PE 100: precisely tailored to your requirements.

Our manifolds are always supplied with all necessary shut-off and control fittings.

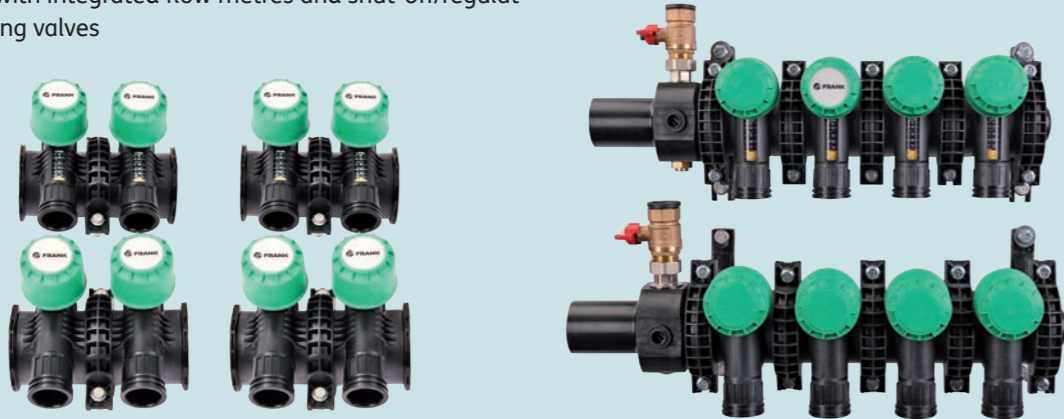
### Modular plastic brine manifold, type 2061 bis -65

- Ideal for geothermal collectors and small systems with FRANK VTP or geothermal probes
- Modular system for easy installation on site
- Volume flow recommended to max. 7,7 m<sup>3</sup>/h\*



### Modular plastic brine manifold, type 3060

- For large volumetric flows up to 16 m<sup>3</sup>/h\*
- Modular system of preassembled distributor units with integrated flow metres and shut-off/regulating valves



\* Specification refers to the medium water, for glycol a corresponding correction factor must be considered.

### Customised solutions: welded brine manifolds made in PE 100

On request, we provide custom-engineered manifolds of any size, including all valves and fittings.

Please contact us for advice or a quote.



# CADENAS - Configuration and drawings of FRANK

Create the desired Chamber manifold CAD model of the FRANK chamber manifolds.

Click here for configuration: FRANK-VTS CAD



Without much effort or extra software, you can create the chamber manifold in the desired configuration and the required CAD format. In addition, you have the option of downloading the configuration as a data sheet for your documents or sending it to us as a quotation request.

- Individual models and drawings in 2D or 3D
- Any CAD formats to choose from
- Configurable connection dimensions and shaft height
- Configurable equipment (according to FRANK standard)
- Product information and specification text suitable for the selected model



## CAD data - CAD system

On PARTcommunity by CADENAS you can easily generate 2D, 3D models as well as PDF data sheets of our industrial piping systems, valves and geothermal products or integrate them directly into your CAD system.



CAD Data Valves

CAD Data Geothermal



CAD Data Pipes a. Fittings

Firma	Frank	
Beschreibung	L-800-T - Verteilerschacht	
Stückliste	L080-A6 W83 K40-2-DK42 X1-1	
TYP Verteilerschacht Typ	L-800-T	
SN Schachtnummer	L080-A6 W83 K40-2-DK42 X1-1	
CHSORDERNO Bestellnummer	L080-A6 W83 K40-2-DK42 X1-1	
LODDEST LOD-Ziel	Architektur	
LODLEVEL LOD-Ebene	350	
A Schachtabdeckung	A35 (DN600)	
WP Ausführung	ohne Abspernung	
TS Teleskopierbare Abdeckung	150	mm
NOC Kreisanzahl	2	12
D1 Wärmepumpenanschluss	d63	
D2 Kreisanschluss	d40	
SP Vorlauf	PVC-KH	
RP Rücklauf	DFM 5-42 l/min	
BE Basisausstattung	Entlüftungskugelhahn	
ACZ1 Rohrstutzen verstärkt	Nein	
ACZ2 Bodenplatte verstärkt	Nein	
D Tiefe	800	mm
W Breite	720	mm
H Höhe	850	1000 mm

# Complete. Professional. Cost-effective.

## Installation accessories

As a full-range supplier, we provide you with the necessary accessories in terms of components auxiliary device and welding equipment for professional and economical installation on the construction site.



**Pipe connectors:** key components required for the connection of the two circuits in duplex probe systems



**Fittings:** we offer a complete range of electrofusion fittings, formed parts for socket-welding and threaded adapter sockets



**Spacer:** for the thermal separation of feed and return pipes of geothermal probes



**Insertion tool:** for the rigid or oscillating fixture of weights to probe foot



**Weights:** steel weights to minimise buoyancy during probe installation



**Underground marking tape:** for proper marking of the pipeline system and to prevent damage



**Pipe reeler:** for easy and stress-free installation of geothermal probes



**Grout pipe:** PE-100 pipes to backfill probe bore hole

# Professional welding

Welding technology for geothermal probes and connecting pipes

We have developed the polycode (BT) for the professional welding of geothermal probes and connection pipes.

The compact welding device, fixed in a lightweight plastic case, is ideally suited for electro fusion welding in dimensions from d 20 to d 180 mm.

The polycode (BT) can be operated as usual using the buttons on the welding device. Thanks to its innovative technology, the welding device can additionally be controlled via smartphones and tablets. The great advantage lies in the management of the protocols. When using a smartphone or tablet, these are simply uploaded to a cloud and can be called up immediately.

All this and much more can be realised with this FRANK welding device and the free FRANK app. You can find more information about the app on our homepage or simply contact us.

#### Scope off supply:

- FRANK polycode BT, fixed in stable transport case
- Barcode scanner
- USB stick
- Operation manual



polycode 400 (BT)....

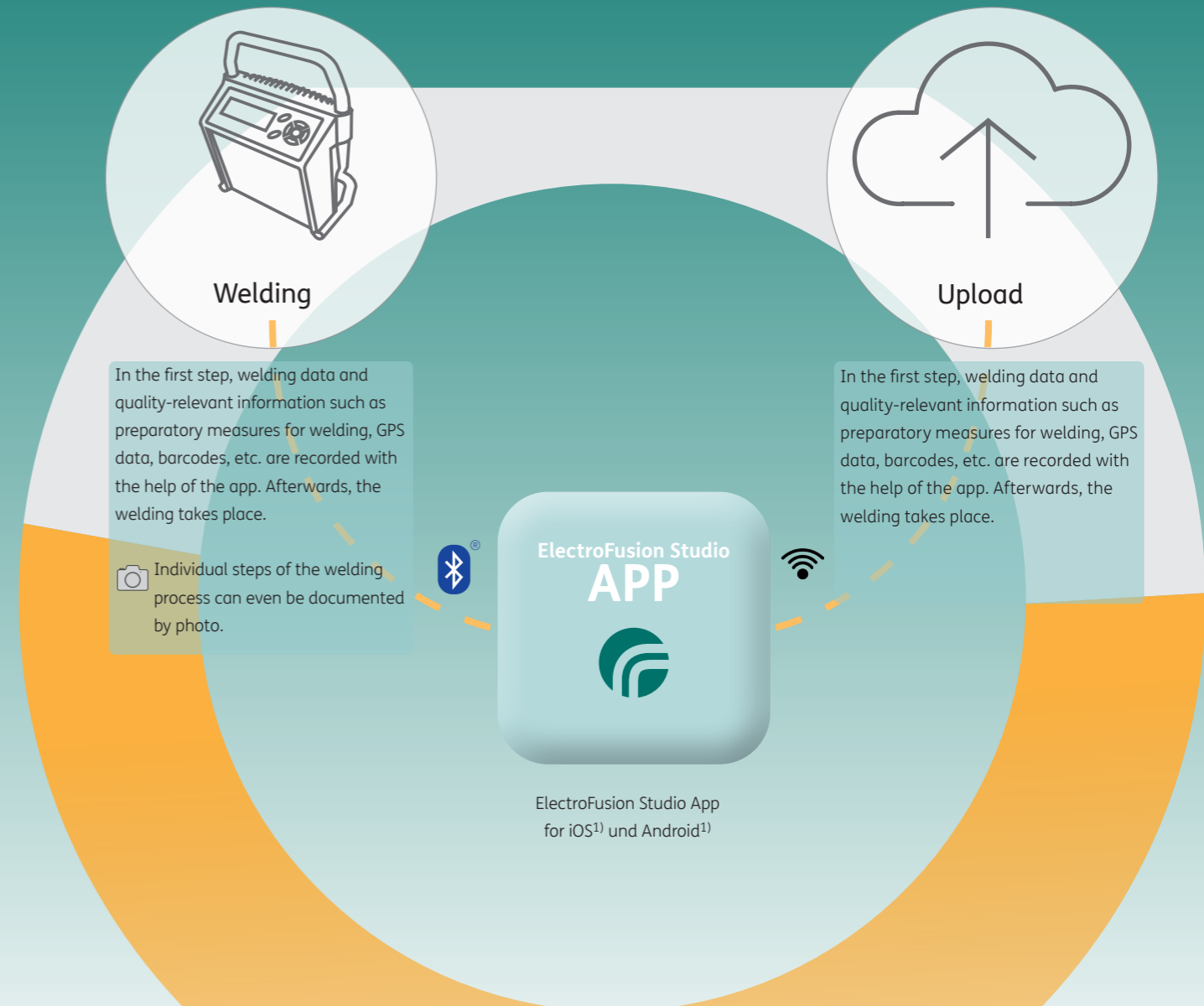
... complements the success story of the polycode (BT). Only more powerful! Integrated protected in a plastic case - compact and safely stored - ready to hand for your use!

# Quality assurance with EFS app

for FRANK electrofusion welding machines



Our new ElectroFusion app provides easy setting and operation of your FRANK welder and allows convenient data collection, storage and management. All details of a welding process, incl. photos of the individual work steps, can be easily and securely stored in your personal user account on a job-by-job basis.



1) For iOS devices as of version 9.3 and for Android devices as of version 4.4

Wärme aus Seen und  
Flüssen  
FRANK WET / Wasserwärmetauscher  
Heat from lakes and rivers  
FRANK WET / Water heat exchanger

Erdwärme nutzen ohne zu bohren  
FRANK Erdwärmekollektor-Set  
Ground source energy horizontal collectors  
FRANK Geothermal energy collector set

Für geringe Bohrtiefen  
FRANK VTP® / Vertical Thermpipe  
For shallow drilling depths  
FRANK VTP® / Vertical Thermpipe

Für Bohrtiefen bis zu 400 m  
FRANK Erdwärmesonden aus PE 100-RC und PE-X  
For drilling depths up to 400 m  
FRANK Geothermal probes made of PE 100-RC and PE-X

Wärme aus Erdrreich und Abwasser  
FRANK PKS-THERMPIPE®-System  
Heat taken from the ground and  
sewage  
FRANK PKS-THERMPIPE® system

Do you have any queries?  
Then please do not hesitate to contact us!

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info@frank-gmbh.de



