

Ø 12-26 mm

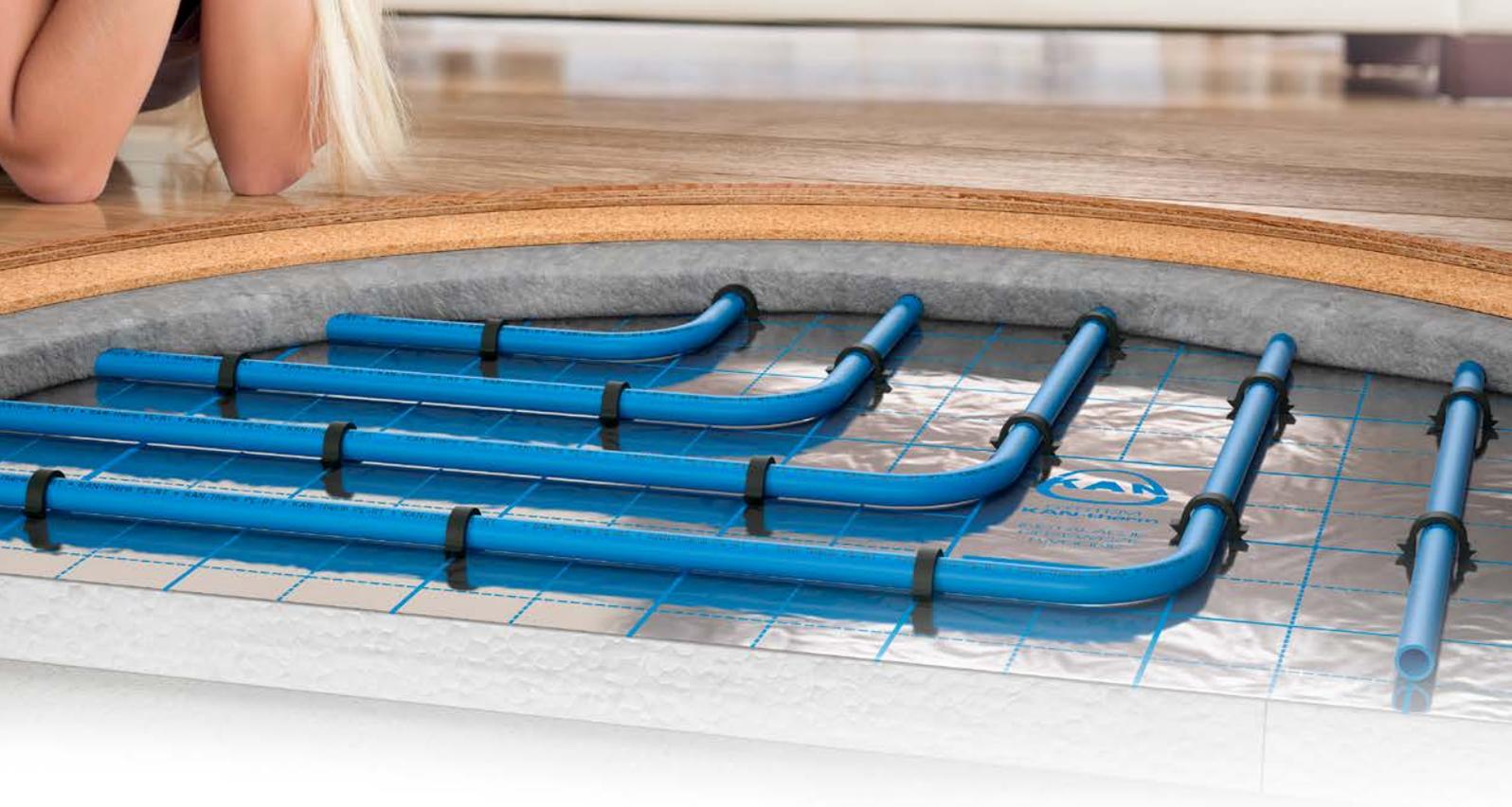


SYSTEM **KAN-therm**

# Underfloor heating

Comfort and efficiency

EN 2018



TECHNOLOGY OF SUCCESS



ISO 9001



## About KAN

### Innovative water and heating solutions

KAN was established in 1990 and has been implementing state of the art technologies in heating and water distribution solutions ever since.

KAN is a European recognized leader and supplier of state of the art KAN-therm solutions and installations intended for indoor hot and cold tap water installations, central heating and floor heating installations, as well as fire extinguishing and technological installations. Since the beginning of its activity, KAN has been building its leading position on such values as professionalism, innovativeness, quality and development. Today, the company employs over 600 people, a great part of which are specialist engineers responsible for ensuring continuous development of the KAN-therm system, all technological processes applied and customerservice. The qualifications and commitment of our personnel guarantees the highest quality of products manufactured in KAN factories.

Distribution of the KAN-therm system is performed through a network of commercial partners all over Poland, Germany, Russia, Ukraine, Belarus, Hungary, Ireland, the Czech Republic, Slovakia, Romania, in Scandinavia and in the Baltic States. Our expansion and dynamic development has proven so effective that KAN-therm labeled products are exported to 60 countries, and our distribution network assumes Europe, a great part of Asia, and a part of Africa.

The KAN-therm system is an optimal, complete multipurpose installation system consisting of state of the art, mutually complementary technical solutions for pipe water distribution installations, heating installations, as well as technological and fire extinguishing installations. It is the materialization of a vision of a universal system, the fruit of extensive experience, the passion of KAN's constructors, as well as strict quality control of our materials and final products.



**SYSTEM KAN-therm**  
- special award:  
**Pearl of the highest quality**  
and:  
**Golden Quality International Medal**  
2015, 2014 i 2013.

TECHNOLOGY OF SUCCESS



## Contents

3	System KAN-therm Underfloor heating	10	System KAN-therm Profil
4	Floor heating - advantages	11	System KAN-therm TBS
5	Floor heating - advantages	12	System KAN-therm Rail
6	Pipes - characteristics	13	System KAN-therm NET
7	Pipes - advantages	14	Supplementary elements
9	System KAN-therm Tacker	15	Implementations



## SYSTEM **KAN-therm**

### Underfloor heating

**The systems of low-temperature water radiant heating and cooling that make use of floor or wall surfaces as a source of heat (or cold) in premises are becoming increasingly popular. The increase in energy prices forces users to use modern, and at the same time operationally inexpensive, heating installations and devices, manufactured and operated in accordance with the requirements of environmental protection.**

Selection of this manner of room heating is supported mainly by energy efficiency and comfort. The optimal distribution of temperature in a room allows for a decrease in the air temperature which results in a decrease in the supplied thermal energy.

Low supply temperature also reduces heat loss. Even 2 years may be enough for full return on the investment! Therefore, floor heating can be one of the cheapest ways to heat rooms.

The KAN-therm Systems offers a range of modern technological solutions, allowing for the build of energy-saving and robust water heating and floor heating systems. It allows for the construction of any, even very non-standard, floor, wall or ceiling installations as well as outdoor surface heating installations.

## KAN-therm System floor heating and cooling - Advantages

### — **esthetics and comfort of use in the rooms**

All elements of the system are "concealed" in the structure of the building partitions, i.e. floor, wall or ceiling. Therefore, we can freely form and arrange the space of heated or cooled rooms - the heat and cold are supplied only to the places we stay in. In addition, a warm floor allows for walking with bare feet on ceramic lining, without the unpleasant feeling of coldness.

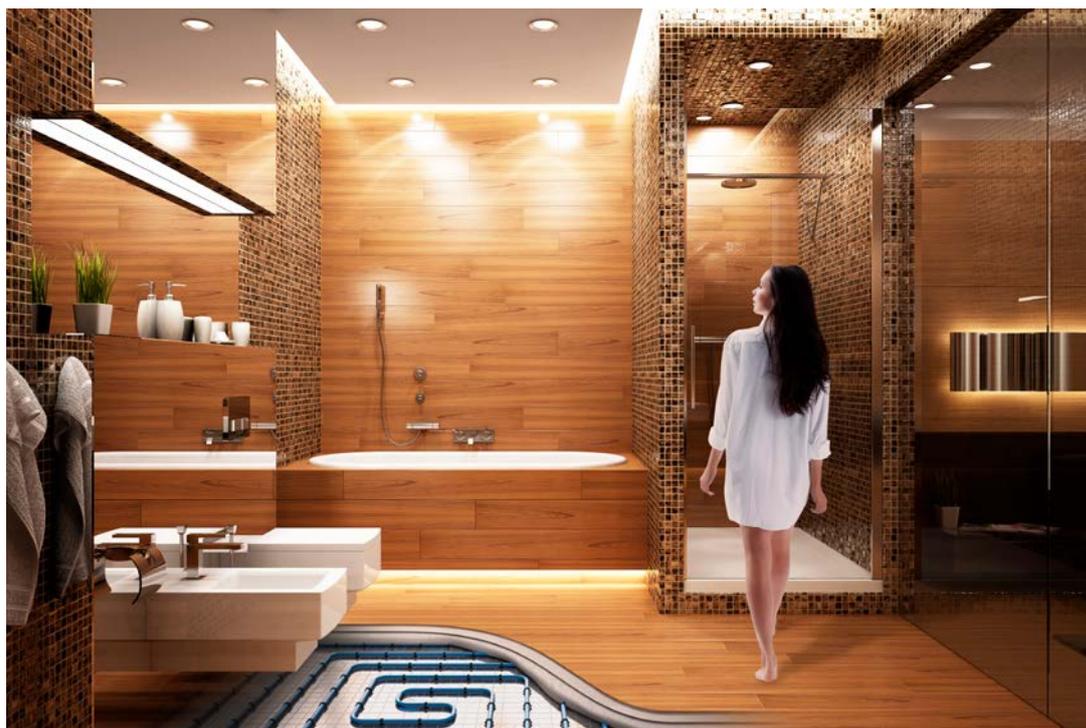
### — **health**

The floor heating and ceiling cooling systems are the closest for an ideal human body distribution of temperature in the room.

### — **hygiene**

In the radiant systems, the heat or cold are emitted to the room as radiation. The lack of air convection in the room eliminates the streak formation process on walls resulting from floating dust accumulating on the radiator surface.

For this reason, such heating systems are particularly recommended for people suffering from allergies as well as for rooms for little children.



— **thermal energy efficiency**

The floor heating installations are low-temperature heating systems matched with modern, energy-saving heat sources, such as condensation boilers or heat pumps. They allow for the use of lower air temperatures in the room in comparison to conventional heating systems which provide the same heat comfort. These properties of the heating system guarantee significant savings due to the possibility of decrease in the season thermal energy consumption in comparison to radiator heating.

— **durability**

The service life of the low-temperature heating and cooling systems is over 50 years and significantly exceeds the service life of the heat sources.

— **safety**

The use of floor systems for outdoor surface heating, such as car parks, garage driveways, passageways, stairs and terraces, makes them safe and comfortable to use even in the winter periods.

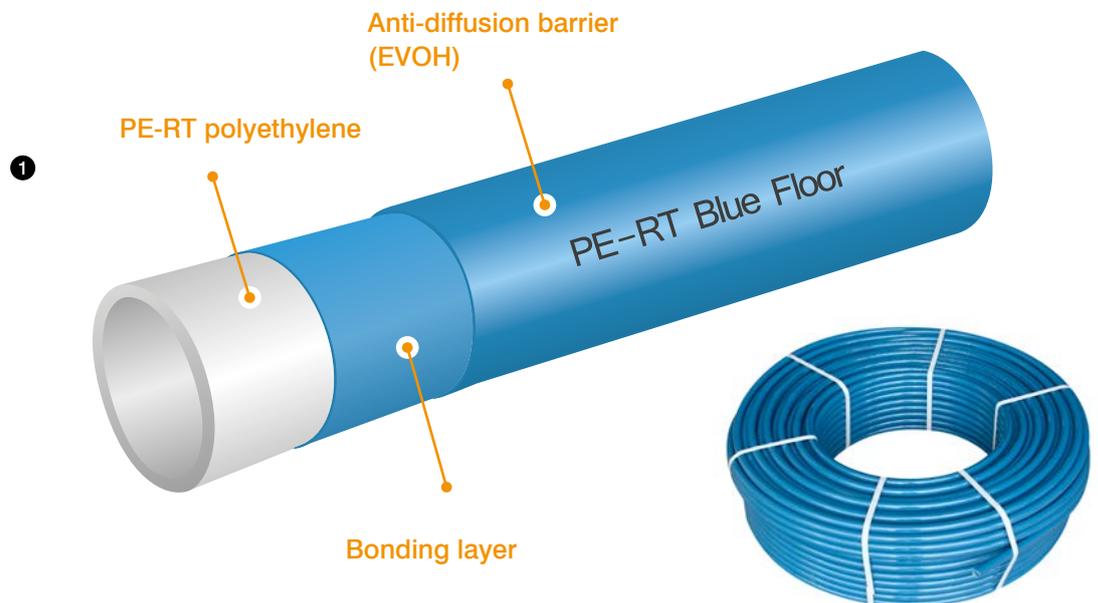
— **versatility of application**

The floor systems can be used in single and multi-family construction, public utility buildings, sport facilities and very tall buildings. They are perfect in the case of historical and sacral investments, e.g. for heating churches.



# KAN-therm PE-RT Blue Floor pipes - Characteristics

The KAN-therm system for all types of floor heating and cooling provides high quality, uniform PE-RT Blue Floor pipes with an anti-diffusion layer.



1. Structure of the PE-RT Blue Floor pipe.

The KAN-therm Blue Floor pipes are made of the acetate copolymers of polyethylene with increased thermal strength and excellent mechanical properties. The properties of pipes and scope of operating conditions are compliant with the PN EN ISO 22391-2:2010 standard.

The application of PE-RT Blue Floor pipes in long coils prevents the formation of a large number of short pipe sections and setting of heating loops with a professional de-coiler significantly improves the work comfort and shortens the investment implementation time.



## Properties of the KAN-therm PE-RT Blue Floor pipes:

	Linear expansion coefficient	Heat conductivity	Minimal bed radius	Internal coarseness	Anti-diffusion barrier	Max. operating conditions
Pipe type	$\alpha$ [mm/m $\times$ K]	$\lambda$ [W/m $\times$ K]	R <sub>min</sub>	k [mm]		T <sub>max</sub> /P <sub>max</sub> [°C/bar]
PE-RT Blue Floor	0.18	0.41	5 x D	0.007	EVOH (< 0.1 g/m <sup>3</sup> x d)	70/6

The KAN company offers the PE-RT Blue Floor pipes with most popular diameters among the floor systems: 12x2, 16x2, 17x2, 18x2, 20x2, 25x2,5. In addition to standard packaging (200m coils), the PE-RT Blue Floor pipes are also supplied in longer, 300 or 600 m coils.

Therefore, the KAN-therm PE-RT Blue Floor pipes allow for quick and safe installation and provide long-term and failure-free operation of the entire heating system - so valuable in case of floor installations.

The offer of the KAN-therm floor heating system also includes PE-Xc and PE-RT uniform pipes with an anti-diffusion layer as well as PE-RT/Al/PE-RT multi-layer pipes, with diameters ranging from 12-26mm, packed in coils, 50-200m each.

## KAN-therm PE-RT Blue Floor pipes - Characteristics

The KAN-therm PE-RT Blue Floor pipes recommended for radiant heating and cooling floor installation involve, first and foremost:

### — safety

Due to the shape memory phenomenon present in the KAN-therm PE-RT Blue Floor uniform pipes, the hazard of clogging and narrowing of the pipe diameter under a heavy load (e.g. from loaded wheel-barrow or stepping on the heating coils by persons) is minimised. This phenomenon allows the PE-RT Blue Floor pipes to always return back to their original form. In case of multi-layer pipes, this situation requires a repair of the heating circuit.



— **material efficiency**

The KAN-therm PE-RT Blue Floor pipes are available in coils, 600m each, which sets the heating loops without formation of short pipe tips which can be problematic for further use in floor installations.

— **installation comfort**

Perfect mechanical properties and elasticity of the PE-RT Blue Floor pipes provide very easy job profiling and mounting of heating loops. Special de-coilers allow for more comfortable and faster, in case of multi-layer pipes, unwinding and setting of straight sections with the use of long pipe coils.

— **top quality guarantee**

The floor heating or cooling installation constructed with the use of high quality KAN-therm PE-RT Blue Floor pipes, after covering with concrete, becomes an integral element of the building structure. Also, the durability exceeds the life time of the heat source and reaches the life span of the building itself. The uniform pipes, in comparison to the multi-layer pipes, are offered only by the largest manufacturers of pipes in the world, therefore the risk of purchase and installation of a cheaper "multi-layer fake" has been reduced to almost nothing.



## KAN-therm System floor heating structure

The KAN-therm System offer provides a number of structural solutions, allowing to construct the floor heating and cooling installations.

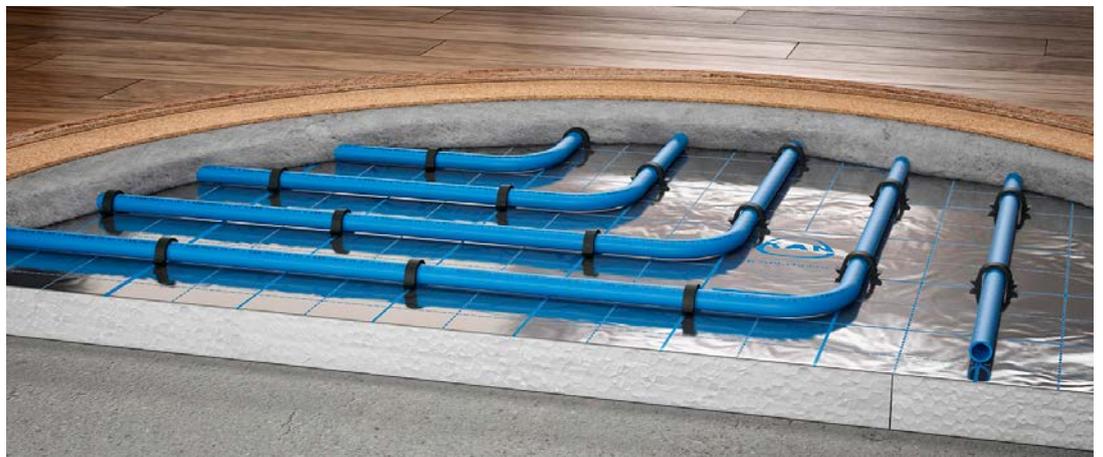
Depending on pipe mounting technique, type and structure of the thermal insulation, as well as intended application, we can differentiate the following complete systems:

### System KAN-therm Tacker

The structure of the floor heater consisting of the KAN-therm Tacker plates is included in floor heating systems made by means of the wet method.

The heating pipes are mounted to the insulation with plastic pins, and then covered in liquid screed. After the conditioning period, the target flooring is set on the screed (parquet, terracotta, etc.).

**Application:** Floor heating and cooling (wet method) in residential and general construction.



### Advantages:

- quick installation of pipes with the use of the Tacker
- broad range of thermal insulation to choose from
- possibility of installation of pipes with any spacing and in various arrangements
- manual and mechanical mounting of the heating pipes
- if using proper insulation, there is the possibility of use in floors exposed to high utility loads or in case of ceilings with increased sound insulation.



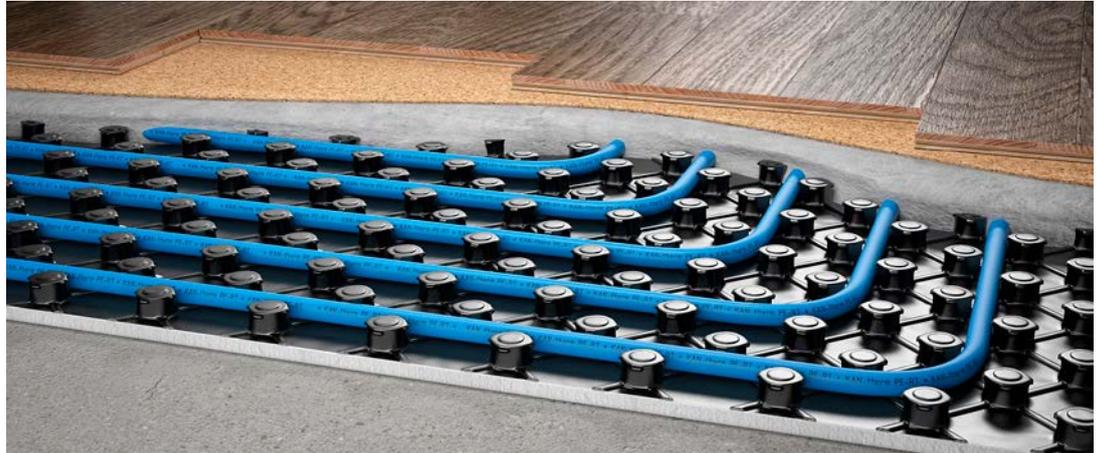
## System KAN-therm Profil

The structure of the floor heater consisting of the KAN-therm Profil plates is included in the floor heating systems made by means of the wet method.

The heating pipes are mounted by means of pressing between notches on the insulation.

### Application:

- Floor heating and cooling (wet method) in residential and general construction.



### Advantages:

- quick installation due to simple and fast setting of system plates and easy mounting of the heating pipes,
- decreased screed demand
- possibility of installation of pipes with any spacing and in various arrangements
- manual mounting of the heating pipes
- if using proper insulation, there is the possibility of use in floors exposed to high utility loads or in case of ceilings with increased sound insulation.



## System KAN-therm TBS

The water floor heating based on the KAN-therm System TBS plates belongs to floor heating structures made in the dry system. The heating pipes are placed in specially profiled grooved insulation plates and then covered with dry screed plates, with thickness depending on the designed utility load of the floor. The heat from the heating pipes is evenly distributed to the dry screed plates through the steel radiating laths placed in the plate grooves.

### Application:

- Floor and wall (dry method) heating in residential and general construction.
- The floor and wall heating (dry method) in renovated facilities - in case of ceilings and light or wooden constructions, with low load bearing capacity, sensitive to high load.



### Advantages:

- low mounting height
- light structure, allowing for installation in low load bearing capacity ceilings, wooden ceilings
- quick assembly resulting from the manner of setting and lack of necessity to maintain the screed
- possible application for existing and renovated buildings, historical facilities
- possible application in sport facilities for heating of elastic floors

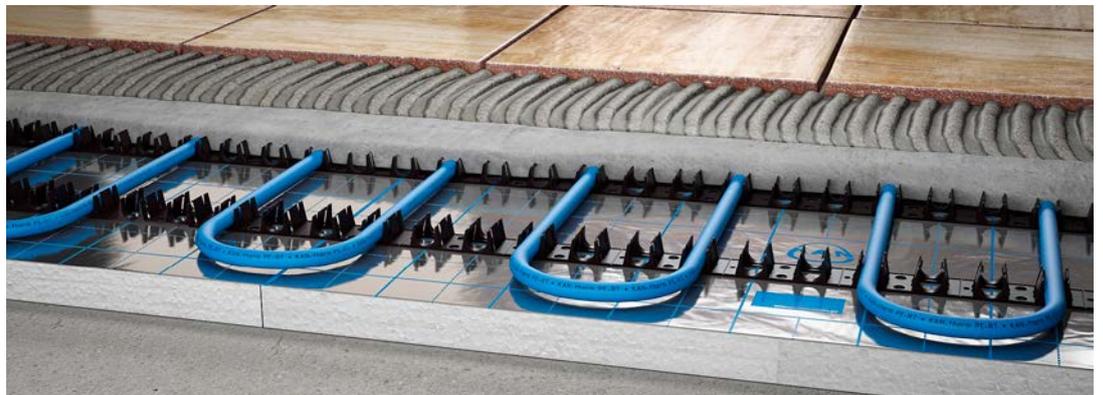


## System KAN-therm Rail

The water radiant heating consisting of the KAN-therm Rail System elements belongs to floor heating installations made by means of the wet method.

The KAN-therm Rail system is based on special plastic strips used to mount the heating pipes. The plastic strips can be mounted directly to the building partition, without any additional thermal insulation (floor, wall or ground) or to the building partition on thermal insulation, e.g. KAN-therm Tacker system (floor, wall).

The KAN-therm Rail system elements are a perfect solution for outdoor surface heating installations, directly or partially exposed to the effect of external atmospheric conditions: snow, ice layer formation. The aim of these types of installations is acceleration of the snow and ice melting process, drying, and maintenance of constant temperature of the utility surface (passageways, car parks, garage driveways, stairs, terraces, landing grounds, etc.) and grounds (sport stadiums, football pitches, etc.).



### Application:

- floor heating made by means of the dry method, for floors with air space, e.g. set on sleepers (elastic sport floors),
- wall, floor or ceiling heating and cooling made by means of the wet method
- outdoor surface heating or cooling, e.g. passageways, terraces, garage driveways, stairs, landing grounds, pitch turfs, ice rinks cooling,



## System KAN-therm NET

KAN-therm NET is a heating pipe mounting system for various types of surfaces: for thermal insulation of a concrete surface, directly on the concrete surface or directly on the ground.

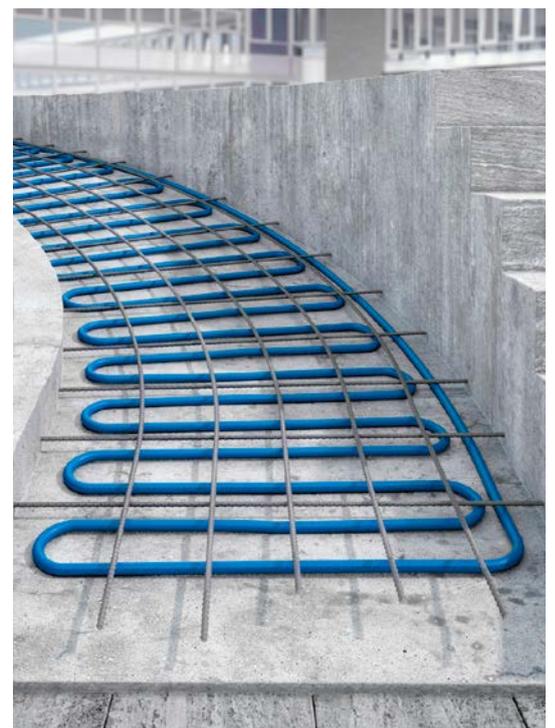
The structure of the flat surface heater can vary depending on the applied thermal insulation (or its lack of) as well as the type and thickness of the layers over the pipes.

In the KAN-therm NET system, the heating pipes are mounted to the surface by means of a special wire net, with a diameter of 3mm, and special plasticities or clips, anchoring the pipe to the net.



The wire net can be set on KAN-therm Tracker system insulation plates or on the standard EPS insulation plates, with stretched PE anti-moist foil, fitted to the EPS with plastic plugs.

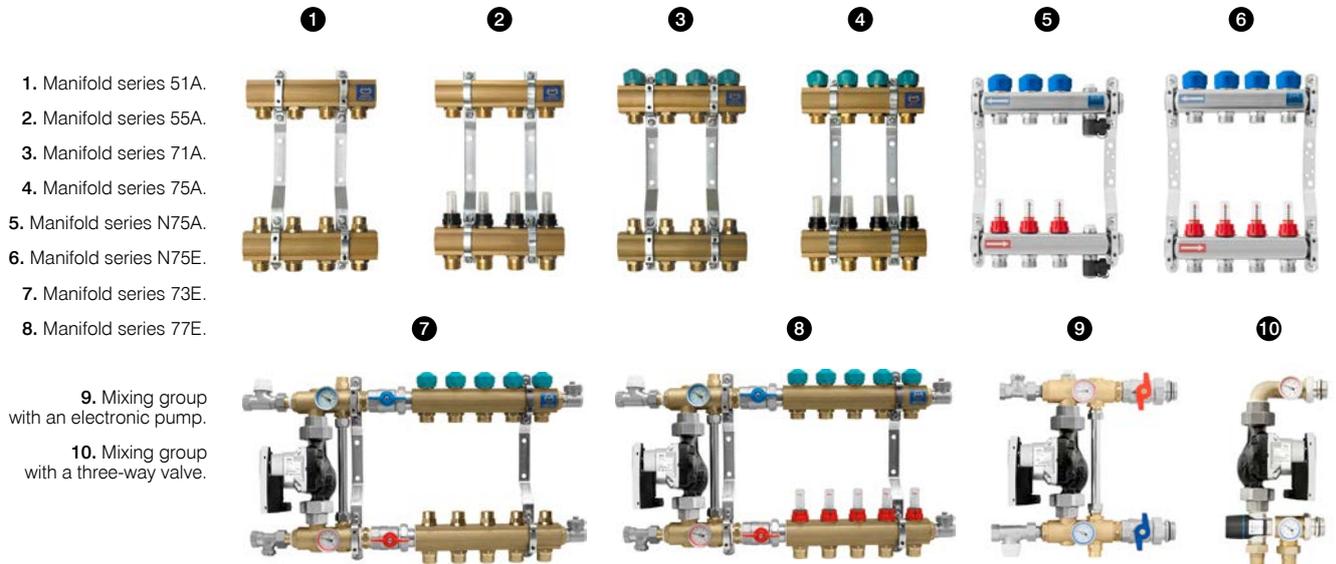
The KAN-therm Net system elements can be also used to mount pipes in monolithic structures, e.g. in thermally active ceilings, and for setting of pipes in outdoor surface heating systems, e.g. in passageways.



# Supplementary elements for the radiant heating/cooling installation of the KAN-therm System

The KAN-therm System for the floor heating/cooling installations provides also a number of additional supplementary elements such as:

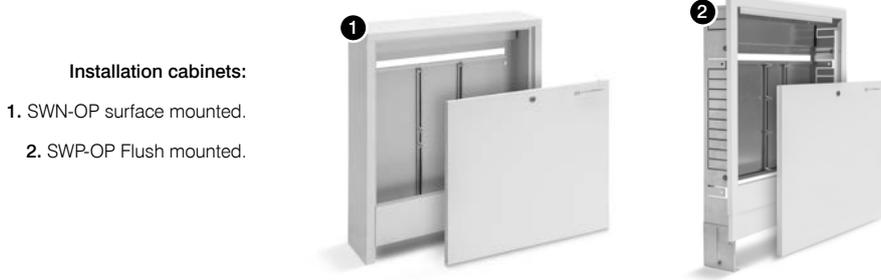
## Manifolds and mixing groups for the floor heating installation



- 1. Manifold series 51A.
- 2. Manifold series 55A.
- 3. Manifold series 71A.
- 4. Manifold series 75A.
- 5. Manifold series N75A.
- 6. Manifold series N75E.
- 7. Manifold series 73E.
- 8. Manifold series 77E.

- 9. Mixing group with an electronic pump.
- 10. Mixing group with a three-way valve.

## Installation cabinets in a flushed and surface version - depending on the needs of the investment



Installation cabinets:

- 1. SWN-OP surface mounted.
- 2. SWP-OP Flush mounted.

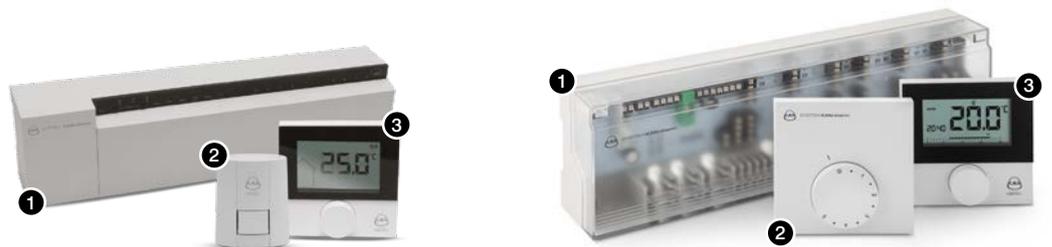
## Wireless KAN-therm smart and wired KAN-therm Basic automatics

### Smart automatics

- 1. Wireless electric strip.
- 2. Smart 24V/230V electric actuator.
- 3. Wireless thermostat with LCD.

### Basic + automatics

- 1. Electrical strip 230 VAC/24 VAC.
- 2. Analogue thermostat heating 230V/24V.
- 3. LCD Control thermostat heating/cooling 230V/24V.



## Supplementary elements such as plasticisers, floor reinforcement nets, as well as wall tapes and expansion profiles.



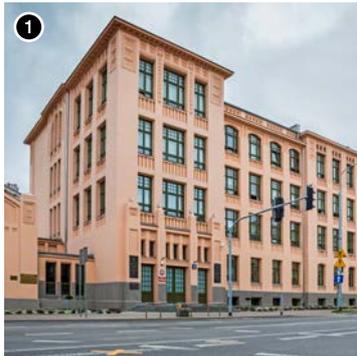
# Implementations

The greatest proof of the high quality of the KAN-therm System are multiple performances in various construction sectors.

Although we can't see them every day, the installations made in the KAN-therm System have been operating without failures for the past 20 years in the largest residential estates, public utility buildings, detached houses, sport and recreation facilities as well as in industrial shops and factories.

The KAN-therm System is a perfect solution, both for new investments and renovated buildings. Therefore it can also be found in the oldest historical facilities and sacral buildings.

1. Historic building of the University of Lodz - Łódź, Poland.



2. Barn chicken breeding - Brzozowo Wielkie, Poland.



3. Detached house - Poznań, Poland.

4. Lettuce cutting reloading shop - Kosów, Poland.



5. Elephant area, Zoo Poznań, - Poznań, Poland.

6. Heliport - Olsztyn Hospital, Poland.

6. Porsche showroom, Niederrhein - Moers, Germany.



7. Park Pobedy metro station - Moscow, Russia.

8. "Bielyj Chram" Orthodox Church - Minsk, Belarus.



9. Aleksiej Metropolitan Bishop's Orthodox Church - Nizhny Novgorod, Russia.

10. Rożdiestwo Christowo Orthodox Church - Kiev, Ukraine.

## SYSTEM **KAN-therm**

Optimal, complete multipurpose installation system consisting of state of the art, mutually complementary technical solutions for pipe water distribution installations, heating installations, as well as technological and fire extinguishing installations.

It is the materialization of a vision of a universal system, the fruit of extensive experience, the passion of KAN's constructors, strict quality control of our materials and final products, and vast knowledge of the market of installations to meet the requirements of energy efficient, sustainable construction.

	Push Platinum	
	Push	
	Press LBP	
	PP	
	Steel	
	Inox	
	Sprinkler	
	Surface heating and automation	
	Football Stadium installations	
	Cabinets and manifolds	



**KAN** Sp. z o.o.  
ul. Zdrojowa 51, 16-001 Białystok-Kleosin  
tel. +48 85 74 99 200, fax +48 85 74 99 201  
e-mail: [kan@kan-therm.com](mailto:kan@kan-therm.com)

[www.kan-therm.com](http://www.kan-therm.com)