



Install your **future**

SYSTEM **KAN-therm**

# Surface heating and cooling

Ø**8-25 mm**

# KAN company

KAN is an experienced and well-known Polish producer of modern and complex installation systems KAN-therm recognised on the international arena.

Since opening its business activity in 1990, KAN-therm has built its position on strong pillars: professionalism, innovativeness, quality and development. Nowadays, it employs more than 1100 people. It has a branch network in Poland and international offices around the world. The products with the label KAN-therm are exported to 68 countries on different continents. The distribution chain covers Europe and a significant part of Asia, Africa and America.



> 30

years of experience on the installation market

68

countries to which we export

> 1100

employees worldwide



SYSTEM **KAN-therm**

# Surface heating and cooling

Ø 8-25 mm

The systems of low-temperature water surface heating and cooling (floor, wall or ceiling) make use of building partition surfaces as a source of heat or cold in rooms.

**KAN-therm systems provide a comprehensive range of products and devices used to construct low-temperature surface heating and cooling installations (floor, wall or ceiling): pipes, thermal insulation, manifolds, installation cabinets and control automatics.**

The optimal distribution of temperature in a room allows for a decrease in the air temperature, maintaining thermal comfort, which results in a decrease in the supplied thermal energy.



- 01** Aesthetics and room use comfort
- 02** Easy assembly
- 03** High quality of elements
- 04** Thermal energy saving
- 05** Safety for many years

# Advantages

The systems of low-temperature water surface heating and cooling that make use of floor or wall surfaces as a source of heat (or cold) in rooms are a common standard of modern, energy-efficient construction.

## Aesthetics and room use comfort

All elements of the system are "concealed" in the structure of the building partitions, i.e. floor, wall or ceiling. With this, we can freely shape and arrange the space of the heated or cooled room – heat or cold is delivered only where we are. Apart from this, a warm floor makes it possible to walk barefoot on ceramic tiles without the uncomfortable feeling of cold.

## Health

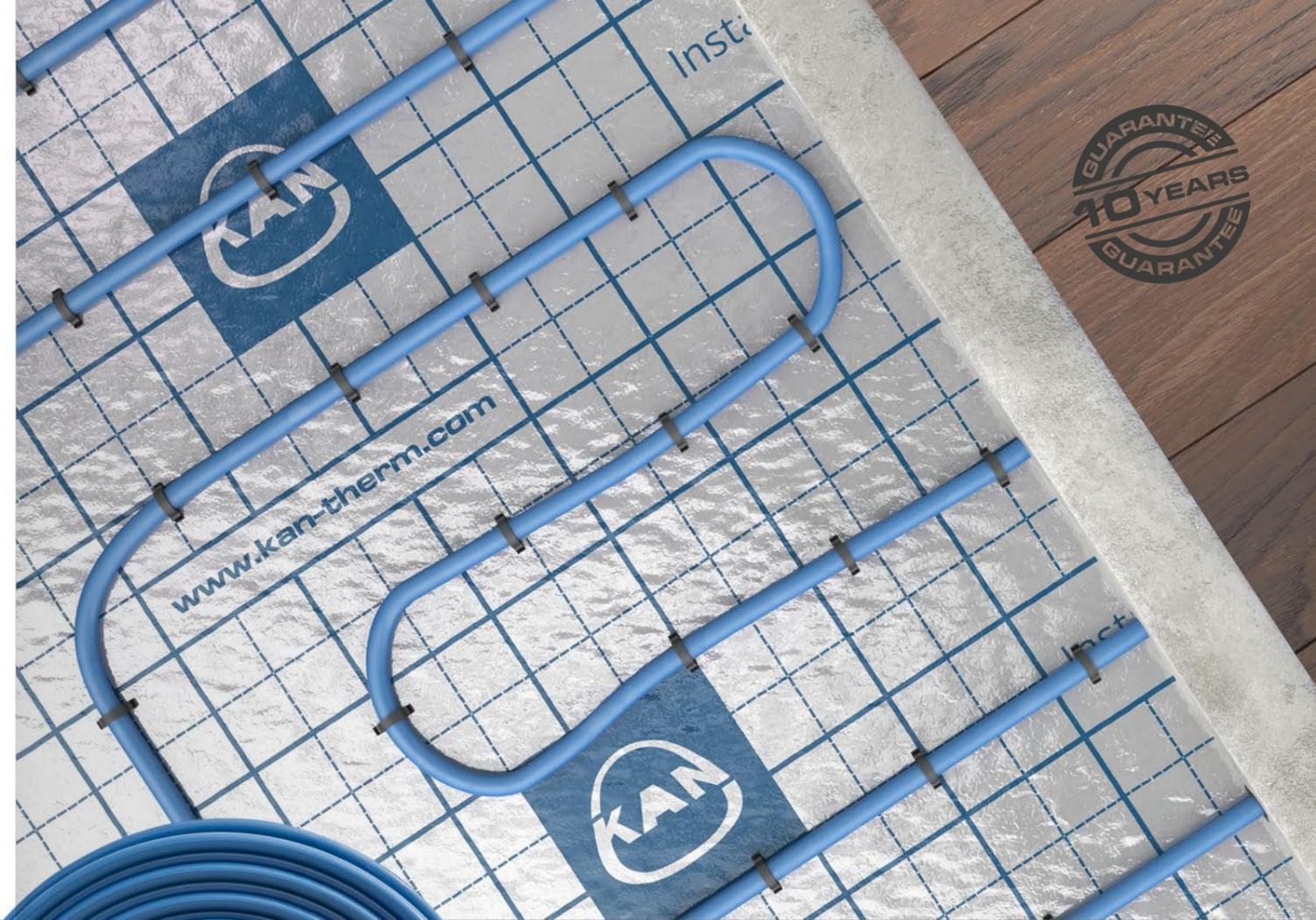
Floor heating systems are the closest to an ideal human body distribution of temperature in the room. Ceiling cooling eliminates unpleasant cold draughts in rooms and guarantees a pleasant feeling of coolness during periods of intense heat.

## Hygiene

In the surface systems, heat or cold is emitted into the room as radiation. The lack of air convection in the room eliminates the floating dust accumulating on the surface of traditional radiators. For this reason, such heating systems are recommended particularly for people suffering from allergies as well as for rooms for little children. There is also no problem with unpleasant dark streaks on walls along the radiators.

## Thermal energy saving

Floor, wall and ceiling heating or cooling installations are low-temperature heating systems working with modern and energy-efficient heat and cold sources such as condensation boilers or heat pumps with the cooling option. They enable us to use lower air temperatures in the room in comparison to conventional heating systems while providing the same thermal comfort. These properties of the heating system guarantee significant savings due to the possibility of decreasing the seasonal thermal energy consumption in comparison to radiator heating.



## Durability

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

## Safety

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

## Versatility of application

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

# Pipes

KAN-therm systems for all types of surface heating and cooling provides high-quality polyethylene pipes with EVOH layer.

## Polyethylene bluePERT pipes with EVOH layer



### High-grade pipes with EVOH anti-diffusion layer for making surface heating and cooling installations (application class 4 according to ISO 10508).

Thanks to the use of PE-RT polyethylene (type I) with high thermal resistance and its high flexibility of the product, KAN-therm bluePERT pipes are comfortable to install even at low temperatures.

The EVOH anti-diffusion layer guarantees tightness against oxygen ingress into the system, protecting its components against corrosion. The EVOH anti-diffusion layer (ethyl vinyl alcohol) meets the requirements of DIN 4726. The pipes are made in line with PN-EN ISO 21003.

bluePERT pipes are available in the diameter range of 12-25mm. They are offered in coils of 200 or 300 and even 600m. Universal uniform PEXC or PERT pipes (type II) with EVOH layer, available in the KAN-therm offer, can also be used to make surface heating and cooling installations. PEXC and PERT pipes are made in the five-layer construction and are available in the diameter range of 12 to 25mm.

3 Anti-diffusion EVOH layer

1 PE-RT

5 PE-RT

4 Binding layer

2 Binding layer



### Properties of KAN-therm heating/cooling pipes

Property	Symbol	Unit	PEXC	PERT	bluePERT
Lineal elongation coefficient	$\alpha$	mm/m $\times$ K	0.14 (20 °C) 0.20 (100 °C)	0.18	0.18
Heat conductivity	$\lambda$	W/m $\times$ K	0.35	0.41	0.41
Minimal bend radius	$R_{min}$		5 $\times$ D	5 $\times$ D	5 $\times$ D
Internal wall roughness	k	mm	0.007	0.007	0.007
Anti-diffusion coating			EVOH (<0.1 g/m <sup>3</sup> $\times$ d)	EVOH (<0.1 g/m <sup>3</sup> $\times$ d)	EVOH (<0.1 g/m <sup>3</sup> $\times$ d)
Max. working conditions (for class 4 according to ISO 10508)	$T_{max}/P_{max}$	°C/bar	70/8	70/8	70/6

bluePERTAL pipes with an aluminium layer or PERTAL pipes also with a layer of aluminium, specially designed and dedicated to this type of installation can be used to arrange loops on floor, wall and even ceiling heating or cooling installations.

## Polyethylene bluePERTAL pipes with an aluminium layer



KAN-therm bluePERTAL is a continuation of the blue line of pipes popular on the market for floor, wall or ceiling heating and cooling installations. KAN-therm bluePERTAL will be appreciated by enthusiasts of pipes with a layer of aluminium. The high flexibility of the aluminium layer facilitates the arranging and profiling of the heating and cooling loops and eliminates the shape memory phenomenon in the bluePERTAL pipes.

The flexible aluminium layer butt-welded using laser technology acts as an anti-diffusion layer and guarantees tightness against oxygen ingress into the system, protecting its components against corrosion.

The pipes are made in line with PN-EN ISO 21003. Between the aluminium and plastic layers, there is an adhesive binding layer that permanently bonds metal with plastic.

bluePERTAL pipes with a layer of aluminium are offered in standard coils of 200 or 600m.

3 Layer of aluminium

1 PE-RT

5 PE-RT

4 Binding layer

2 Binding layer



### Properties of KAN-therm heating/cooling pipes

Property	Symbol	Unit	PERTAL	bluePERTAL
Lineal elongation coefficient	$\alpha$	mm/m × K	0.025	0.025
Heat conductivity	$\lambda$	W/m × K	0.43	0.43
Minimal bend radius	$R_{min}$		5 x D 3,5 x D (while utilizing bending tools)	5 x D 3,5 x D (while utilizing bending tools)
Internal wall roughness	k	mm	0.007	0.007
Anti-diffusion barrier			Al	Al
Max. working conditions (for class 4 according to ISO 10508)	$T_{max} / P_{max}$	°C/bar	70/10	70/6



## Polyethylene PERTAL pipes with an aluminium layer

**PERTAL pipes with a layer of aluminium are another type of pipes for surface heating and cooling installations very popular on the market. They are universal polyethylene pipes made in a multilayer construction with the use of an aluminium layer (application class 1-5 according to ISO 10508).**

The aluminium layer butt-welded using laser technology acts as an anti-diffusion layer and guarantees tightness against oxygen ingress into the system, protecting its components against corrosion.

The pipes are made in line with PN-EN ISO 21003. Between the aluminium and plastic layers, there is an adhesive binding layer that permanently bonds metal with plastic.

PERTAL pipes with a layer of aluminium are available in the diameter range of 16-25mm. They are offered in standard coils of 200 or 100m. The most popular diameters are also available in 600m coils.



## Polyethylene PEXC and PERT pipes with EVOH layer

**All PEXC and PERT pipes (diameters of 12-25mm) are made in the five-layer construction. This means that the EVOH anti-diffusion layer, which protects the system against the ingress of oxygen into the pipeline, is made as an inner layer covered with an additional layer of PE-Xc or PE-RT polyethylene (depending on the type of the pipe).**

This location of the EVOH anti-diffusion layer protects it against possible damage during the assembly.

SYSTEM **KAN-therm**

# Rail

**KAN-therm Rail is a complete installation system, designed for the construction of floor and wall heating and cooling installations, as well as heating and cooling installations for outdoor spaces. The main pipe anchoring element in KAN-therm Rail system are special plastic strips.**



**KAN-therm Rail system is based on special plastic rails used to mount the heating pipes. The plastic rails 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).**

KAN-therm Rail system offers several variants of plastic rails, depending on the needs and characteristics of the investment. Plastic trough rails come in longer sections and are intended for fastening pipes of a specific diameter. Plastic modular rails come in shorter sections and make it possible to fasten pipes of different diameter ranges.

Plastic rails can be mounted directly on a building partition without additional thermal insulation (floor, wall or ground) or on thermal insulation (floor). The elements of system KAN-therm Rail are ideal for heating installations of outdoor spaces directly or partially exposed to weather conditions such as snowfall or formation of a layer of ice.

- 01** | Universal application
- 02** | Plastic structure resistant to corrosion
- 03** | Comprehensive and rich offer of products
- 04** | High quality of elements
- 05** | Easy assembly



# SYSTEM KAN-therm Tacker

KAN-therm Tacker is a complete installation system, designed for the construction of floor heating and cooling installations in wet method. In KAN-therm Tacker system, pipes are attached to the thermal insulation with special clips using a special tool – a tacker.

**The structure of the floor heater made of the elements of KAN-therm Tacker system is included in the floor heating systems made using the wet method. The element fastening heating pipes to thermal insulation are plastic clips fixed to foamed polystyrene boards using a special tool – a tacker.**

KAN-therm Tacker system provides an extensive offer of thermal insulations. Different insulation thickness options are available and give full freedom of choice to meet the insulation requirements of the building partition in line with the applicable guidelines.

The insulation panels of KAN-therm Tacker system have a printed foil in the form of a grid with a spacing of 5cm, which makes it possible to arrange heating loops very precisely following the designed spacing. Because of the print, it is also much easier to arrange the loops in the desired layout, e.g. spiral, meander or mixed.

01

Universal application

02

Comprehensive and rich offer of products

03

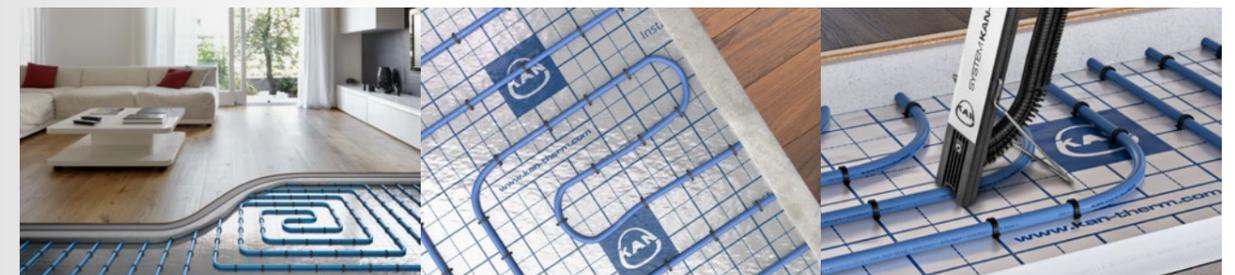
High quality of elements

04

Easy assembly

05

Possibility to adjust the shape of heating loops flexibly



# SYSTEM KAN-therm Profil

KAN-therm Profil is a complete installation system, designed for making floor heating and cooling installations in wet method. In KAN-therm Profil system, the pipe anchoring element is a specially profiled surface of the thermal insulation.

**The structure of the floor heater made of the elements of KAN-therm Profil system is included in the floor heating systems made using the wet method. The element fastening the heating pipes are specially profiled plastic or polystyrene tabs located on the surface of the thermal insulation.**

The insulation panels of KAN-therm Profil system provide the possibility of laying loops with a spacing of 5cm. This guarantees a very convenient way of laying heating loops with a specific, designed spacing and a planned layout. Thanks to their special construction, thermal insulations of KAN-therm Profil system reduce the amount of screed required for pouring the installation.

Specially designed tabs in foamed polystyrene boards of KAN-therm Profil system guarantee durable and reliable anchoring of heating pipes. Assembly of the heating loops is quick and convenient, without the need for additional tools and fastening elements.

- 01** Universal application
- 02** Comprehensive and rich offer of products
- 03** High quality of elements
- 04** Easy assembly without tools
- 05** Reduced amount of screed



SYSTEM **KAN-therm**

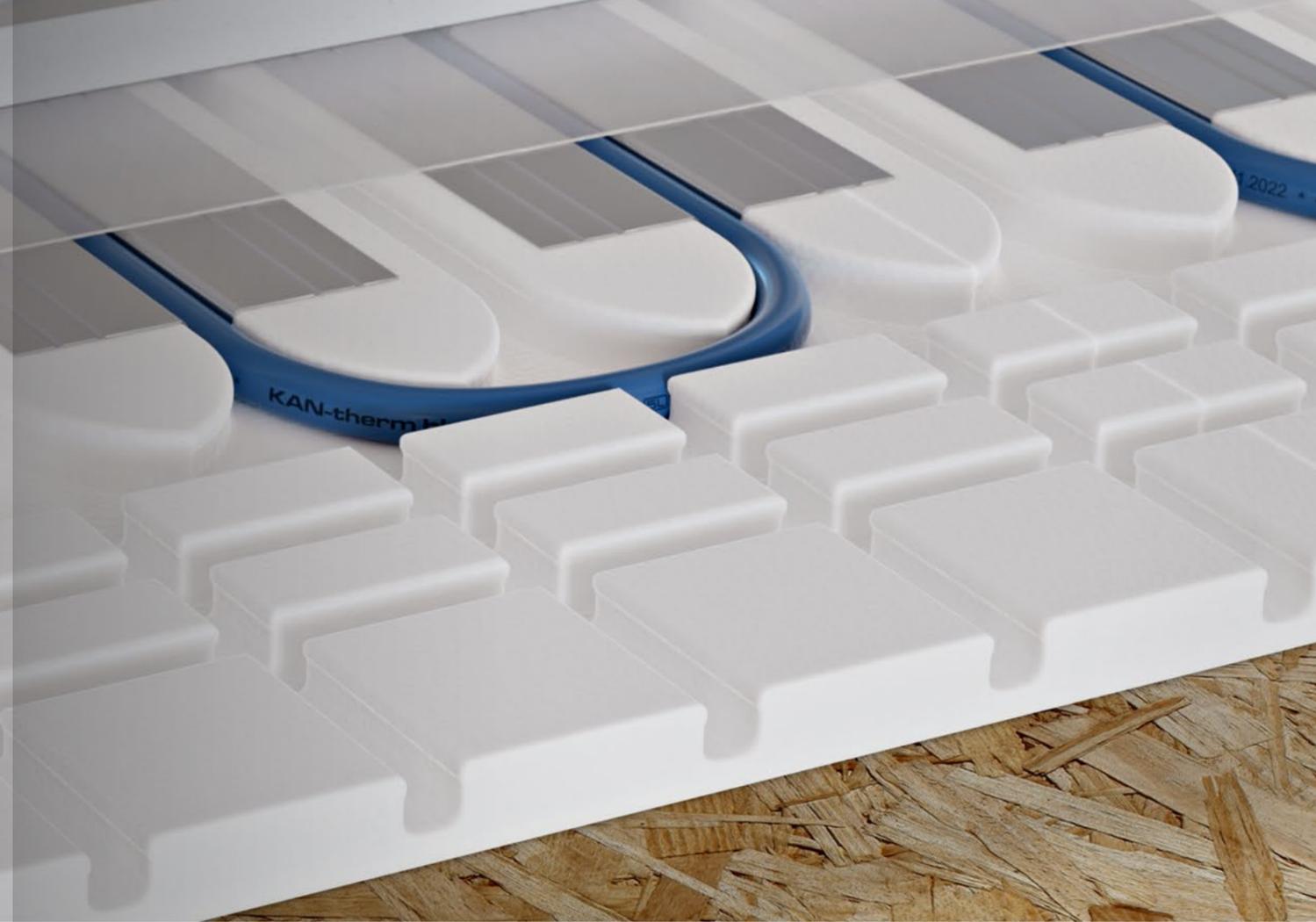
**TBS**

KAN-therm TBS system is a complete installation system, designed for the construction of floor and wall heating and cooling installations using the dry method. The main pipe anchoring element in KAN-therm TBS system is a specially profiled foamed polystyrene board with metal lamellae.

**Water floor heating based on KAN-therm TBS system boards belongs to floor heating structures made in the dry method. The heating pipes are placed in specially profiled grooved insulation panels, and then covered with dry screed plates, with thickness depending on the designed utility load of the floor. Heat from the heating pipes is evenly distributed to the dry screed boards through the radiating steel lamellae placed in the board grooves.**

KAN-therm TBS system is designed for wooden construction where the structure cannot be subjected to a high load of traditional concrete screed.

The construction made in KAN-therm TBS system is characterised by low height. Therefore, the system is often used for renovations or in heating and cooling wall installations made with the dry method.



**01**

Universal application

**02**

Comprehensive and rich offer of products

**03**

High quality of elements

**04**

Easy and quick assembly

**05**

Tools for making grooves in foamed polystyrene boards



# SYSTEM KAN-therm NET

KAN-therm NET is an installation system designed for the construction of floor heating and cooling installations, as well as heating and cooling installations of outdoor spaces. The main element fastening the pipe is a steel net and plastic bands (commonly known as cable ties) or plastic clips.

**KAN-therm NET is a heating pipe mounting system for various types of surfaces – thermal insulation on a concrete surface, directly on the concrete surface or directly on the ground. The construction of the surface heater can vary depending on the applied thermal insulation (or its lack) as well as the type and thickness of the layers over the pipes.**

The elements of the system can successfully be used both in outdoor and traditional indoor floor heating and cooling installations. KAN-therm NET elements are commonly used with other products recommended for surface installations, e.g. KAN-therm Tacker thermal insulation.

KAN-therm NET system makes it possible to lay heating loops with different spacing, is perfect for large buildings such as warehouses and production halls, livestock buildings, office buildings and also for traditional buildings such as single-family houses, e.g. for heating the foundation slab.

- 01** Universal application
- 02** Comprehensive and rich offer of products
- 03** High quality of elements
- 04** Easy assembly
- 05** Possibility of mounting pipes with any diameter



System KAN-therm for surface heating/cooling installations also provides a number of additional complementary elements such as:

# InoxFlow Manifolds

and mixing groups



UVN series



UVS series



UVST series



UFN series



UFS series



UFST series



USVP series



Mixing group with electronic pump



USFP series



Mixing group with three-way valve

# Installation cabinets

Available in surface and recess mounted versions – depending on the investment



Surface mounted cabinet **SWN-OP**



Recess mounted cabinet **SWP-OP**



Recess mounted cabinet **Slim+**



# Control automation

KAN-therm SMART & Basic+ are two independent, complete control systems making it possible to maintain thermal comfort in a building with the optimal operation of the heating or cooling source and high energy efficiency of the entire heating or cooling system.



## KAN-therm SMART

1. Terminal block
2. Electric servomotor **Smart 24V/230V**
3. Wireless thermostat with LCD

## Basic +

1. Terminal block **230 V / 24 V**
2. Analogue thermostat **heating/cooling 230V/24V.**
3. Thermostat with LCD Control **heating/cooling 230V/24V**



SYSTEM **KAN-therm**

# Football

KAN-therm Football system is a set of specially designed, selected and interconnected products that form a full installation for outdoor area heating.

The elements of KAN-therm Football system are prepared for a specific investment. Technical documentation is prepared based on the information collected about the investment and investor requirements. It initiates the process of selecting and preparing individual products. KAN-therm Football system is dedicated to large area investments.

With KAN-therm system for sports pitch heating, icy, snowy or muddy surfaces are now a thing of the past. Heating with KAN-therm system makes it possible to use the sports field all year round, minimising the risk of player injuries.



**01**

Comprehensive investment service

**02**

Top-quality materials

**03**

Experience

**04**

Support with the investment

**05**

Safe use



# Supplementary elements

For optimum use, a comprehensive surface installation may require additional materials and tools, making the assembly easier during work on the construction site..

Universal Pipe uncoiler



Edge tape with perforation



Edge tape with perforation



Edge tape with perforation and foil

Concrete additive BETOKAN Plus



Concrete additive BETOKAN



Fibreglass net for floor reinforcement

Plastic Tacker for clips



Aluminium Tacker for clips



Welded clips in block of 25 pcs.



SYSTEM **KAN-therm**

# WALL

**KAN-therm WALL system offers prefabricated heating and cooling panels used to construct wall and ceiling heating or cooling installations with the dry method.**

**Heating and cooling panels of KAN-therm WALL system in the drywall system are gypsum and fibre panels with milled grooves and PB polybutylene or PERT polyethylene pipes with a diameter of 8×1mm placed inside, which are part of the system KAN-therm WALL system offer. By sticking directly to the partition or using a special frame, they can be mounted on walls and ceilings.**

There are several different versions of heating and cooling panels available, varying in height, width and layout. The panels also differ in the pipe installation height and its spacing. To make it possible to install the complete system, we also offer cover plates (so-called blind) which are not equipped with a pipe - they serve as complementary elements.

KAN-therm WALL gypso-fibre panels undergo an impregnation process during production, among other things. This makes the panels versatile, non-combustible, with high mechanical strength, suitable for both standard dry and wet rooms.



**01**

Possibility of using it instead of traditional gypsum and fibre drywall

**02**

Uniform temperature distribution over the entire room

**03**

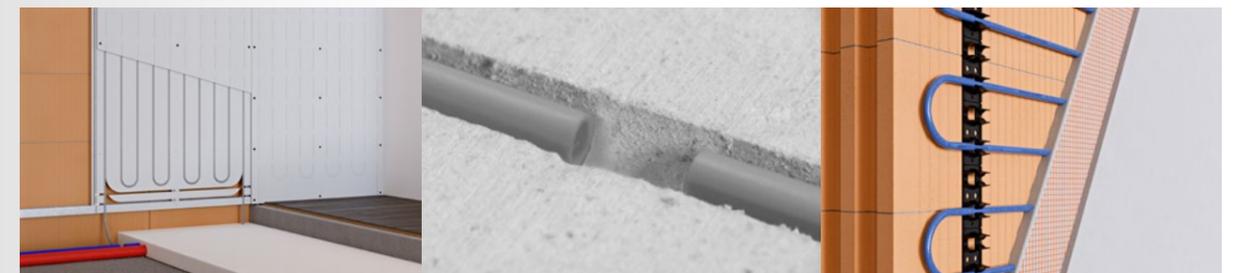
Aesthetic look of the room

**04**

Can be used for cooling in summer

**05**

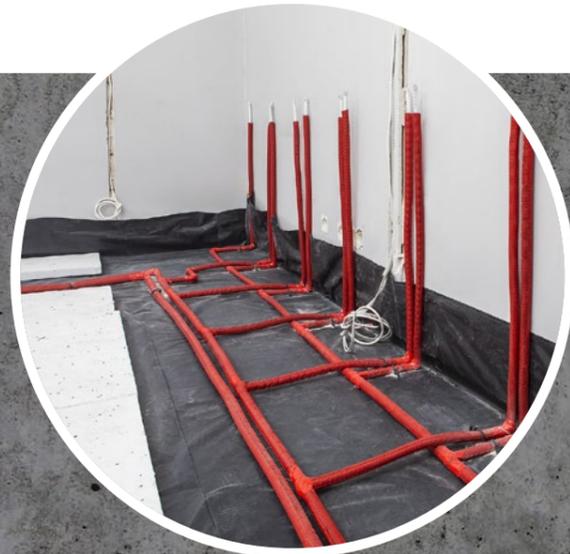
Possibility of using ecological, energy-saving heat sources, e.g. heat pumps



# Assembly of KAN-therm WALL system

The dry construction of KAN-therm WALL system consists of mounting heating and cooling panels to a special load-bearing structure made of metal or wood. It is also possible to mount heating and cooling panels directly onto surfaces (e.g. by gluing or screwing them on) – in such a situation, the surfaces must be very even.

The load-bearing structure can be made of wood (laths, timber frame structure) or steel profiles.



**01** Before installing the load-bearing structure, the supply installation for the heating and cooling panels must be made. It is also necessary to plan and lay other installations that must be routed behind the load-bearing structure, e.g. electricity, sewage, etc.



**02** After laying all the necessary installations, it is possible to proceed to the assembly of the supporting structure for the panels (frame).

Heating and cooling panels can be mounted on the load-bearing structure by:



Fastening with bolts to a steel or wooden load-bearing structure



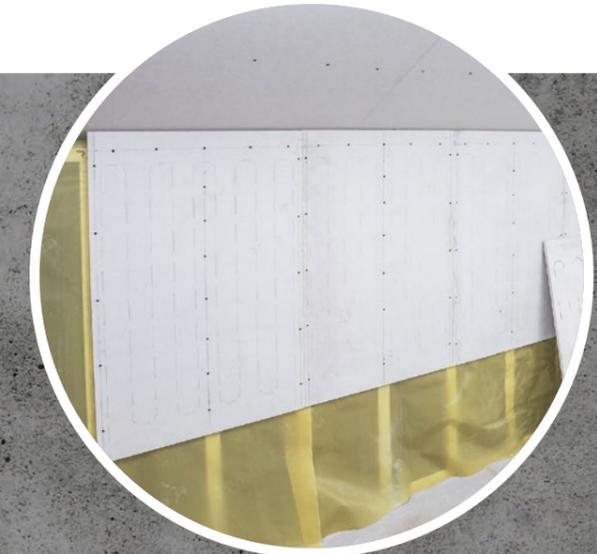
Fastening with clamps to a load-bearing wooden structure



Fastening with clamps to gypsum and fibre panels



**03** In the case of even surfaces, wooden or bricked, the panels can be fixed directly to the partition.



**04** Glue the heating and cooling panels together to achieve a monolithic structure.



## The best proof of the top quality is the numerous projects in various sectors of the construction industry.

Although they remain hidden on a day-to-day basis, installations based on KAN-therm system have been working trouble-free in major residential estates, public facilities, single-family houses, sports and recreation facilities, as well as industrial halls and factories for over 20 years now.

System KAN-therm is a perfect solution for new investments and renovated buildings, that is why you can also encounter it in the oldest historic and sacral buildings.

# Multisystem **KAN-therm**

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.

	ultraLINE	
	ultraPRESS	
	PP	
	Steel	
	Inox	
	Groove	
	Copper, Copper Gas	
	Sprinkler	
	Surface heating and cooling Control automation	
	Football Stadium installations	
	Cabinets and manifolds	