

Uponor

Industrial solutions

BETTER INDOOR CLIMATE,
BETTER PERFORMANCE



Partnership for better human environments

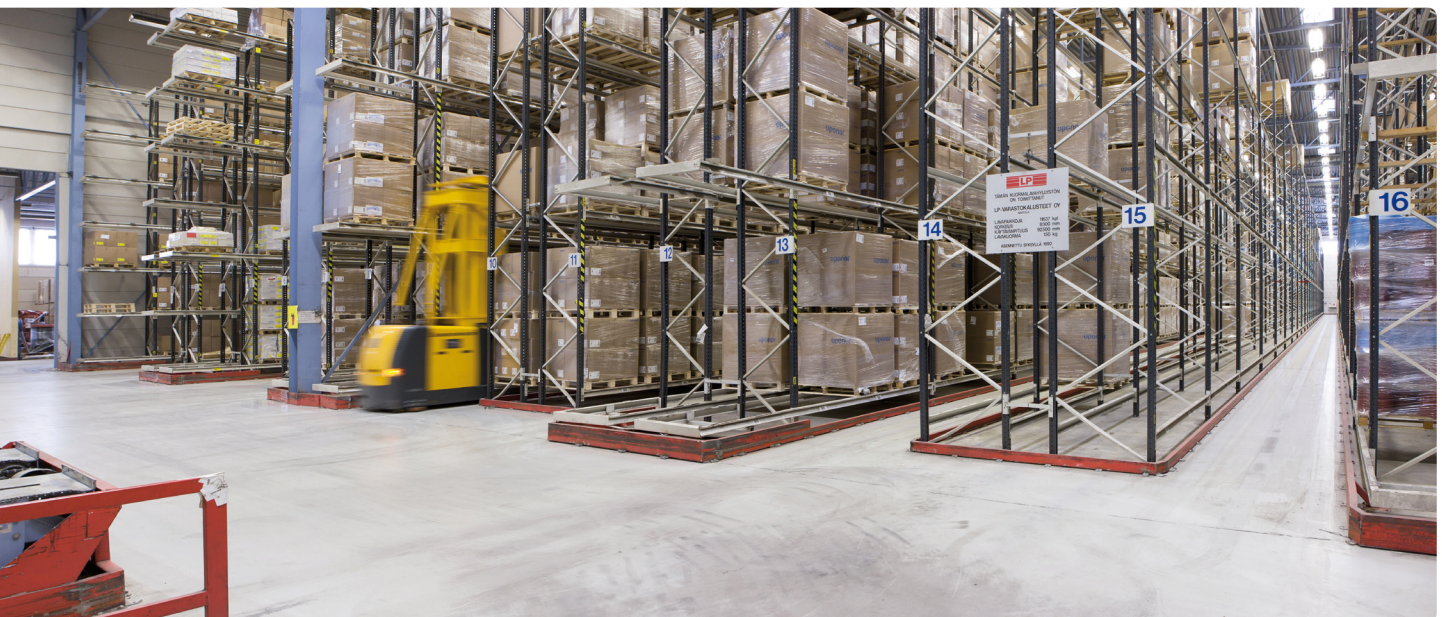
Our dialogue with customers has resulted in continuously developing the way we deliver services to construction projects. As a leading provider of indoor climate and plumbing solutions, we aim to bring new ideas into practice and generate better services for every partner in the process, all the way from investors to installers.

Our support in all stages of construction – right from the very first concepts to buildings in use – contributes to the quality of the built environment and the efficiency of the construction process.

The sustainability of buildings is becoming more and more important to both society and our industry as a whole. Our solutions provide the best basis for indoor comfort combined with the most efficient

use of energy. It is at the core of what we do. This is why we partner with professionals to create a better environment in every meaning of the word.

"Our approach to create innovative solutions that bring efficiency and sustainability"



The additional value of Uponor expertise

Our solutions are made to provide superior quality, easy integration into the building process and to give higher value to the building.

As leading experts in water based radiant systems, Uponor offers a superior thermal environment for working at optimised energy efficiency and cost.

Our low energy solutions are ideal for the use of renewable sources and help reduce consumption and CO2 emissions.

We provide the construction industry with safe, fast and efficient installation technologies, giving long-lasting, healthy and trouble-free solutions. We allow developers to improve the solutions quality standards, offering differentiation and added value to their buildings.

Our large ranges of products, which are corrosion resistant, hygienic, completely feasible and flexible, are designed as systems that integrate the construction process.

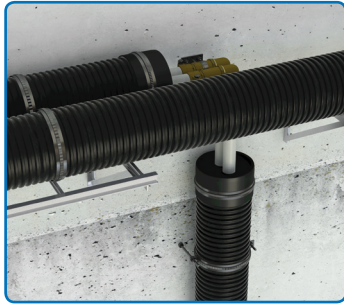
Our systems are designed to offer long life and no expensive maintenance.

Our technical service guarantees local support in all process stages, from design to installation.

Uponor is always at your side to support you in the design stage.

- Low investment cost
- Low running cost
- Freedom of design
- Proven technology
- Optimal working environment

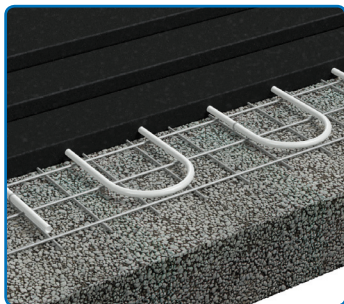
Uponor systems for Industrial Buildings



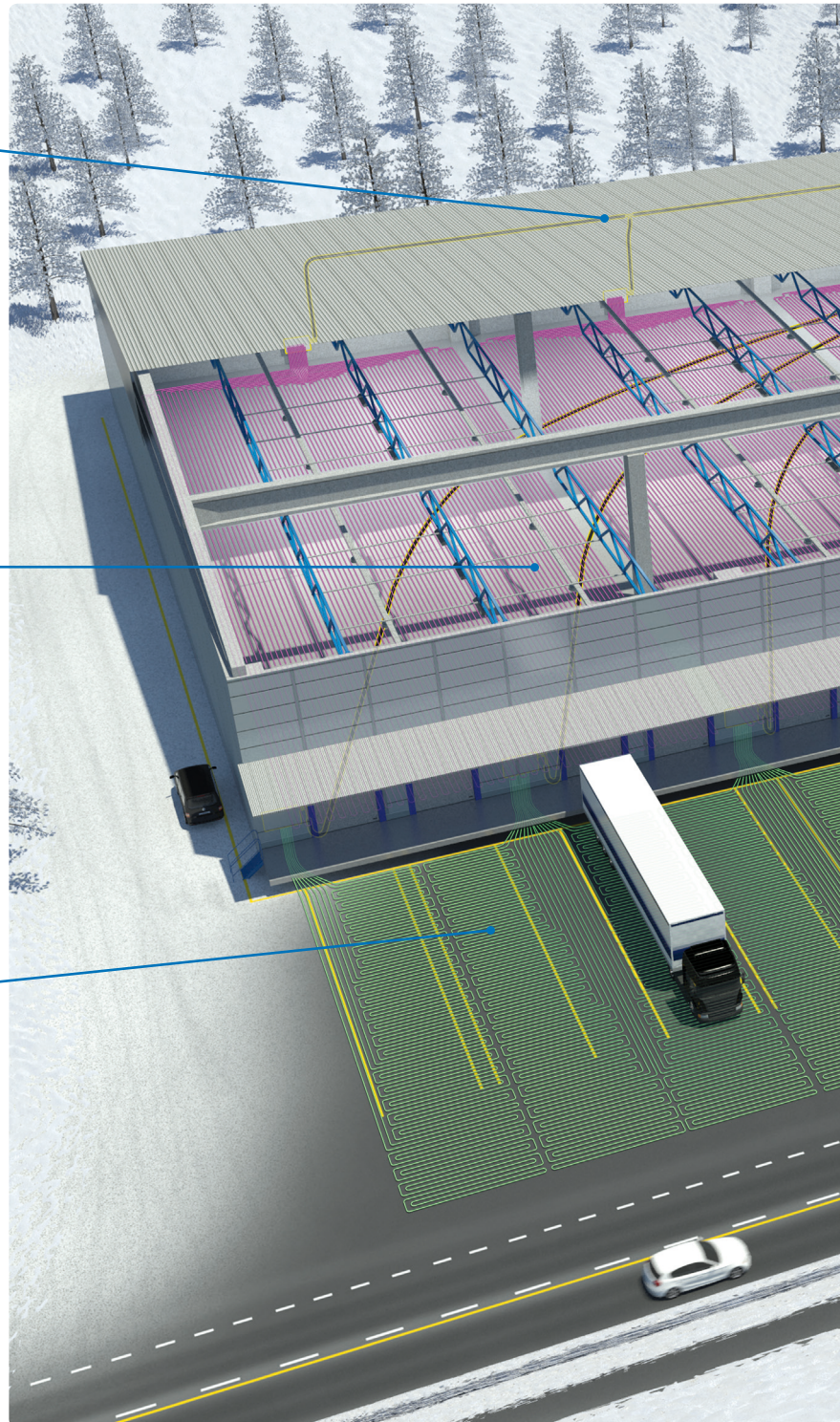
Uponor pre-insulated distribution pipe system

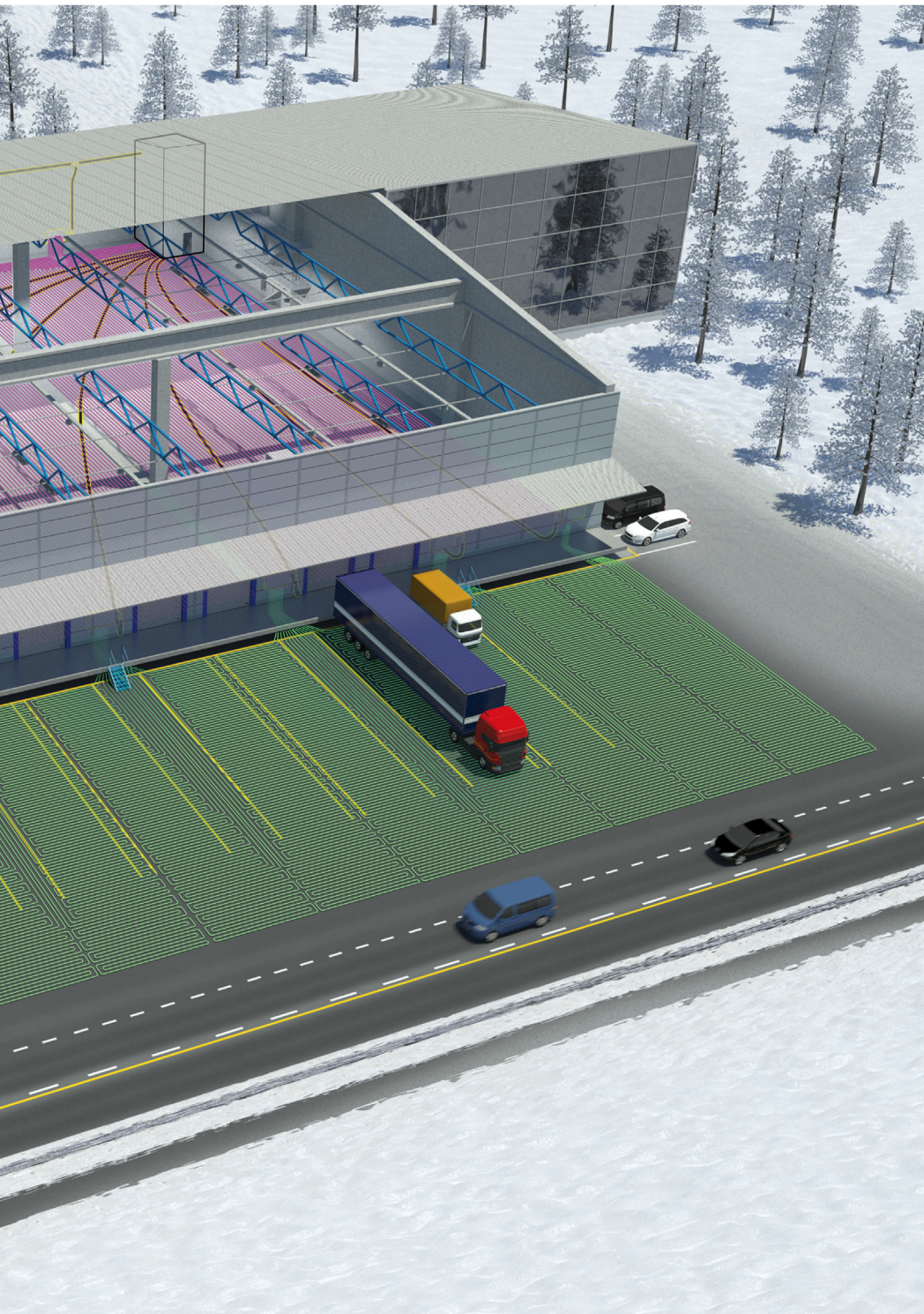


Uponor Industrial underfloor heating and cooling system



Uponor Snow and ice melting system





Uponor does not only offer you high performance through high pipe technology but radiant heating and cooling systems for the industrial building.

Our caring starts with manufacturing the reliable, robust and durable PE-Xa pipe that is able to cope with the tough environment of floor construction in an industrial building. We design and optimise the Underfloor heating system to our customers' specific needs and ensure that our system is delivered on time. It is installed by Uponor trained installers and we provide support and reliable partners for total project delivery.

Uponor Industrial Underfloor Heating System

Low maintenance

Hall space is too cost-sensitive to surrender valuable space to a heating system. Conventional, visible heating surfaces incorporating pipework, ducting, and fans must be regularly cleaned, replaced, painted, and maintained, quite the opposite of what the Uponor Industrial Underfloor heating system can offer. The Uponor underfloor heating system does not require any effort in terms of individual maintenance. In this way we can reduce the operating costs drastically, leading to a rapid return on investment.

Cost efficient

The Uponor industrial underfloor heating system is cost efficient because the entire system can be operated at low temperature levels. Heat losses at the point of heat generation and distribution can be minimised. Ground energy and the possibility to use existing thermal energy, e. g. from production processes, can additionally decrease energy expenses. Through whole floor construction optimisation the effectiveness of the energy source can be fully utilised.

Field of Application

Uponor Industrial Underfloor heating and cooling system is a low-temperature heat distribution system to heat or to cool industrial spaces.

The construction and composition of industrial floors strongly depends on the effects of static and dynamic loads. These can be wheel loads of vehicles, static loads of shelves and machines, but also the mechanical and chemical impact on floor surfaces have to be considered.

The great advantage of the Uponor Industrial Underfloor heating system is that it does not influence the static calculation. Because of this the system can be built directly into the concrete floor slab.

Moreover, there are no more static constraints regarding the roof construction due to the heating system. In other words, the ideal conditions for making optimal use of the interior hall space.

This is a fact that makes our system so flexible and universally applicable.

System benefits

- Long life time with low maintenance costs
- Fast pay back time in combination with low temperature heat sources
- Adjustable system with optimal building space utilisation
- Suitable for different kinds of industrial buildings



Smart system for serious use:

Applications range from workshops, through production halls with light and heavy machinery, to warehouses where forklift trucks are used and even airport maintenance hangers.



Efficient and safe working environment

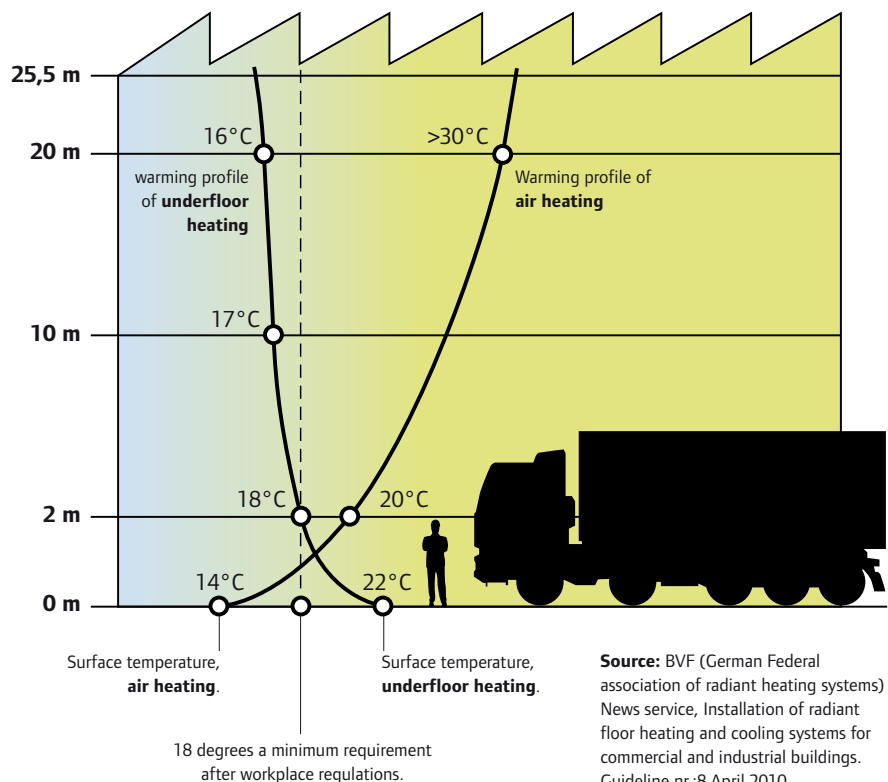
Every machine has an optimal operating temperature but what about people? A pleasant temperature in the workplace motivates staff to perform at their best. In general, the temperature of the floor plays an important role, alongside the room air temperature. The Uponor industrial underfloor heating system creates this ideal

working atmosphere. It provides a large area with heat radiation without dust circulation. This makes it ideal for warehouses, storages and retail outlets where you want to keep your items and products clean.

System benefits

- Constant and even temperature level
- Low air speeds with no dust circulation
- Efficient and safe working environment

Temperature curve of an industrial underfloor heating and ceiling-mounted air heating system:



Uponor Snow and ice melting system

Better working environment

To offer more answers on how to create efficient and safe working environments we must not forget that the outdoor areas outside the industrial building are as important as indoor comfort. Uponor has a long tradition in developing different snow and ice melting systems and have used this experience in providing safe pedestrian paths, parking areas and loading areas for trucks. This has prevented accidents and created an efficient and safe working environment all year round.

Low Maintenance

One of the most changeable and unpredictable costs that is an existing but still changing factor is snowfall. It will happen every year but no one knows exactly when and how much snow there will be. This creates constant problems with the cumbersome manual removal of snowfall. Sometimes

you have enough machinery to do it but sometimes it can cause delays that last days. This problem can be drastically eliminated with the Uponor snow and ice melting system. No more will snow piles interfere with decorations, furnishings and normal commercial activity. This benefit can be easily calculated in decreased manual snow removal maintenance costs and transferred to constant unchangeable surface heating costs that are easily predictable.



"Benefits can be easily calculated in snow removal costs."



Ideal system for the distribution of heating and cooling

Low investment through flexibility

The Uponor local heat distribution pipe is the proven name for the innovative, flexible, pre-insulated plastic piping system, designed to transport a variety of liquids both inside and outside buildings.

Our solution is to offer a pre-insulated distribution pipe system for cooling as well as for heating networks. We offer one single system that functions efficiently in terms of cost and energy.

With Uponor pre-insulated distribution pipes, chilled water for cooling systems can easily and economically be transported to buildings. The network installation can be handled quickly and efficiently on site even in the most difficult conditions.

The cooling network can be used to supply cool water either



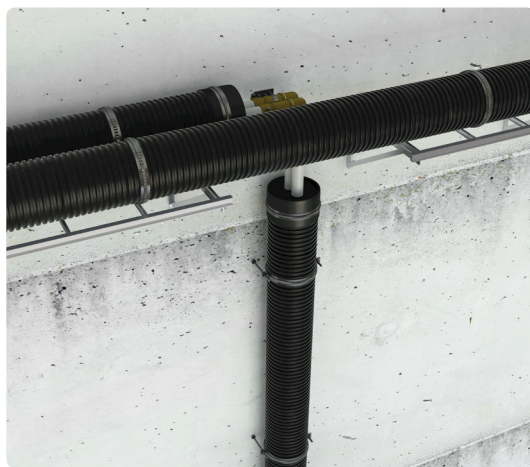
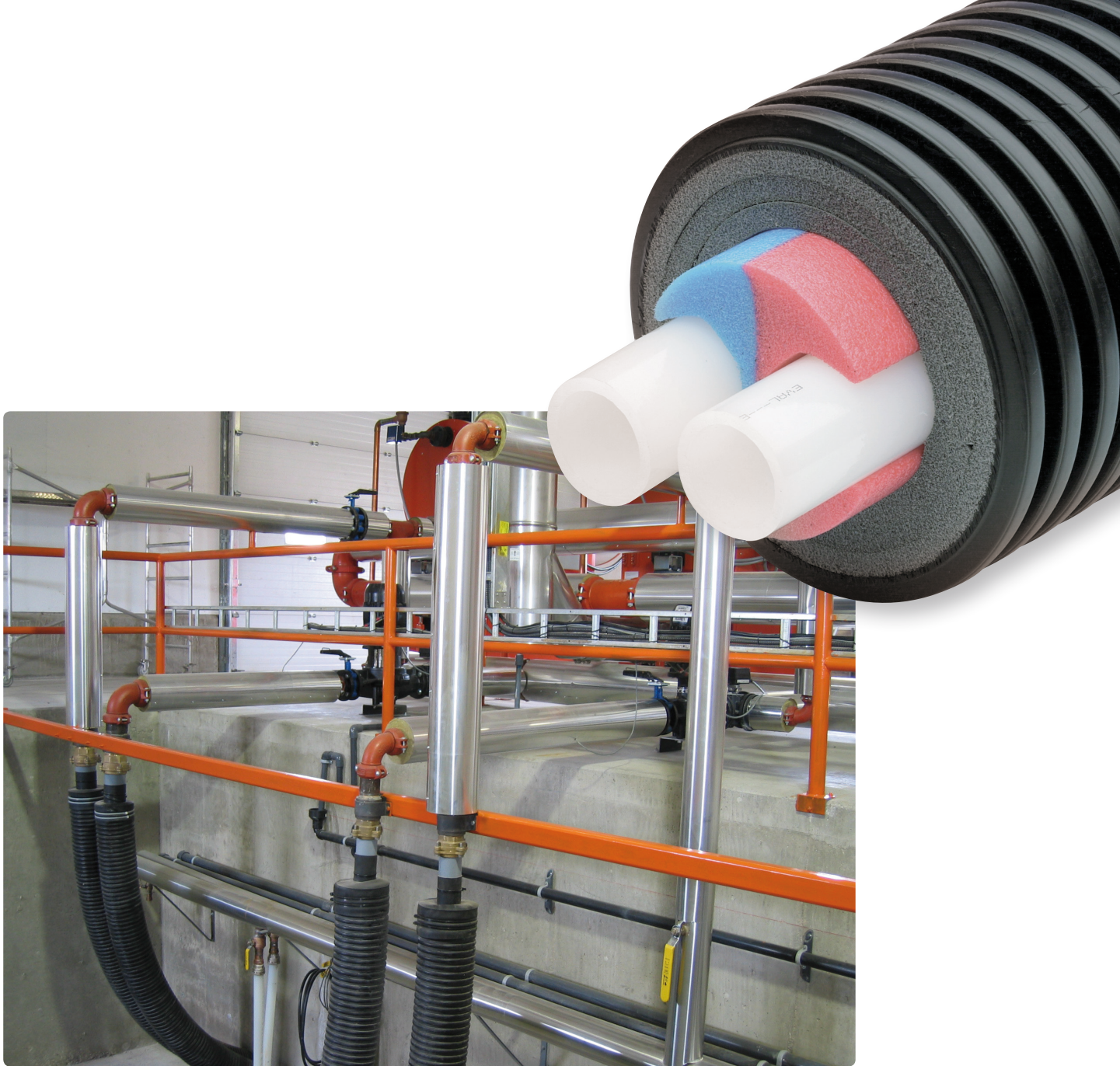
to radiant cooling systems or to air-conditioning units. The system also comprises a complete range of products for hot and cold water supplies. Its material properties give long service life, and as the pipes are of low-weight and are highly flexible, they can be installed quickly and easily, even over obstacles and round corners.

The Uponor pre-insulated system is the practical, perfect and multifunctional pipe system for industrial heating or cooling needs. It is the ideal system for the distribution of heating and cooling.

System benefits

- One system for heating and cooling network
- Approved and tested complete systems
- Advanced technologies for all system components
- Strong support and service for projects
- Certification and warranty
- Long experience in the production of pre-insulated pipes; over 30 million meters produced since 1985





Flexible option:

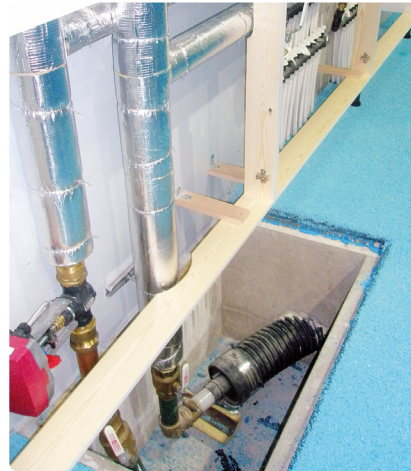
Uponor pre-insulated distribution pipes offer one single system that can be installed flexibly. Because of this it can be designed to function efficiently in terms of cost and energy for both cooling and heating network.

Pajulahti Sports Hall

The challenging part with the sports hall was not the placing of the underfloor heating manifolds but connecting them to the actual heat source. As the indoor sports hall has a full sized football field and a running track

with really high and curving ceiling space the solution was to install the Uponor thermo single pre-insulated pipes into the floor structure underneath the sports areas. By doing this it was possible to save working

time, metres of pipes meters and the heating areas could be put into use very quickly. This also left the walls free of connecting pipes.



The sanitation and heating construction company Johann Holz

Slippery areas will no longer occur under foot outside the Holz office entrance, thanks to the Uponor snow and ice melting system. The heat engineering regulator is managed by the Uponor regulator station. This is necessary because the pipes are filled with a water /

glycol mixture, so they will not freeze. The regulation station is designed so that the snow and ice melting system is switched on automatically, dependent upon the external temperature. It then maintains the requisite defrosting temperature in accordance with

a ground sensor placed in the parking area. Switching off also occurs automatically if the temperature exceeds the critical external temperature. Thus the system works economically.



Chatterley Valley

Built by main contractor McLaren Construction, the Uponor system was incorporated directly into the ground bearing slab in conjunction with a laser screed machine. Working alongside Stuarts Industrial

Flooring the pipework was integrated into the slab without causing any time delays. Daily production of up to 1,800m² of completed floor incorporating the Uponor system were achieved.



BMW Dynamic Centre Dingolfing

The internal climate within the dynamic centre provides thermal comfort through the Uponor industrial underfloor heating system which was integrated into joint less rolled concrete using the "DFT process". The floor's concrete

material is transported right up to the facility entrance by truck and is then tipped over the first section of underfloor heating. A rough distribution of the material then takes place using a wheel loader, so that the next truck

can drive over this surface with a subsequent load of concrete. In this way the heating pipes are protected by the overlaying concrete.



Efficient working environment is

- **Cost effective**

Minimised running costs due to the ability to use free and low cost energy.

- **Human friendly**

Optimal working environment with neither dust nor indoor draughts. A pleasant temperature motivates staff to perform at their best.

- **Reliable**

Safe working environment with products that are proven in use. Being a partner with Uponor will bring benefits – reliably.

Uponor Corporation
Robert Huberin tie 3 B
FIN-01511 VANTAA
Finland
+358 20 129 211
www.uponor.com

Uponor
simply more