



By Jens Rasmussen, Technical Manager, isoplus Denmark

EXPORTING THE RIGHT SUPPLY OF HEAT AND KNOWLEDGE

CASE

In Kohtla, Estonia, isoplus Denmark has supplied pipes for establishing a new district heating supply between the towns of Järve, Ahtme and Sompa. By the end of 2012, a total of 34 km of pre-insulated pipes will connect these three picturesque towns with district heating.

All towns used to have district heating, but the existing heating works are due to be shut down. Instead, the region's refinery, owned by VKG Sojus AS, will supply the towns with environmentally friendly surplus heat. This is one of the few places in the world where they refine 'shale oil', extracted by pyrolysis of sedimentary rock containing kerogen, which can be transformed into petroleum-like fluids.

THE NEW DISTRICT HEATING NETWORK S EASY ON THE ENVIRONMENT

The environment in Kohtla will in future be spared a good deal of CO₂ emissions, due to utilisation of the surplus heat from the refinery, so that the need to use other fuels will be reduced, including those of fossil origin, which would otherwise have been used to fuel the district heating system.

In the years ahead, district heating will generally play an increasingly major role in Europe, as no less than 40% of the energy consumption is used for heating homes. Using district heating as an energy source permits significant reductions in the carbon account, allowing us to conserve and protect our environment now, tomorrow and in the future.

KNOW-HOW RELATING TO PRE-INSULATED DISTRICT HEATING PIPES

In Denmark, approximately 40% of the district heating production is based on non-fossil fuels, thus being CO₂ neutral. This means that we are well positioned to help other countries meet their targets for reducing their CO₂ emissions.

VKG Sojus AS had no previous experience of installing transmission pipelines of the order of magnitude in question, and isoplus has therefore been involved as a close partner throughout the entire process.





Incidentally, it was the sizeable production capacity, quality and technical capability that led to VKG Soojus AS selecting isoplus Denmark as supplier to begin with. The delivery to VKG Soojus AS does not just involve supply of district heating pipes, but electrical fusion joints as well. All mantle joints are executed using electrical fusion, a technology which ensures that the system is provided with the safest joint on the market – and with full documentation covering the entire assembly process.

To ensure that everything is executed in accordance with current standards, isoplus has taken charge of all static calculations for the pipe system, and we have also produced the requisite project drawings. In addition, the contract also provides for a monitoring system, electrical pre-stressing, and the overall design of the pipe system. All project drawings relating to the procedures for electrical pre-heating have also been executed by isoplus.

STATIC COMPENSATION ON 30 SECTIONS

Pipe-laying in the 17 km long channel using pipes of DN 500 dimension imposed specific requirements of its own.

Due to the large pipe dimensions and the installation's high maximum temperature of 1400°C the system had to be subjected to electrical thermal pre-stressing. Where pre-heating of this type is performed, the system's axial stress can easily be reduced to around half of that of a system which is laid cold.

ALARM SYSTEM

Innovative product development to meet the ever-changing requirements of the market and use of the latest technology are important aspects. This is why the district heating system in Estonia was provided with the newly developed isoAlarm 4500. The alarm system will in future alert system operators via text messaging and e-mail to any moisture ingress in the insulating polyurethane foam, allowing VKG Soojus AS to repair any fault before damage to the pipe system is sustained. This ensures safe and stable operation of the installation.

TRAINING AND SUPPORT FROM ISOPLUS

isoplus operates on the basis of a "total quality" concept, where we do our utmost to provide our customer base with a quality experience for the full duration of our partnership, right from the very first contract until the pipes are in the ground and the installation is up and running.

In Estonia, the partnership has been all the closer in that the Estonians had no prior experience of installing a transmission pipeline with the dimensions in question.

At isoplus we have therefore also taken charge of the necessary training of supervisors and personnel from VKG Soojus AS, as well as instructing the sub-contractors' staffs in how to assemble and install the joints and use a foaming machine. To see the project through to its full and proper conclusion, isoplus also dealt with practical problems, such as, e.g., provision of generators and foaming machines.

The thorough training we delivered ensured that the project ran smoothly, focusing very much on safe and correct execution at every stage.

DELIVERY AT THE RIGHT TIME AND PLACE

It was not just training and support for the district heating installations in Estonia that meant special requirements for isoplus. The logistics also require extensive planning, coordination and cooperation with VKG Soojus AS, given that, at peak times, 16 trucks a week have to deliver consignments over the course of five working days per week – a task which was solved via close dialogue with VKG Soojus. Only thanks to this close cooperation was it possible to deliver the entire system in a record-breaking six months.


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A BENEFIT FOR THE ENVIRONMENT



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