

Energy efficiency IN FOCUS

There is a trend in Russia to minimize heat losses in the district heating systems by replacing old mineral wool insulated district heating pipes with polyurethane-insulated pipes, which conserve energy and last much longer.

As energy prices rise, countries with a cold climate would do well to invest in the quality of district heating pipes and their insulation material to minimize heat loss.

“Under difficult circumstances, during the severest frost, heavily loaded pipes may burst. If a pipeline has a high level of heat loss, the temperature of the water running in it has to be raised to make sure that even the houses at the end of the pipeline are properly heated. Since thermostat systems tend not to work very well either, it is often the case that the first houses along the pipeline take up all the heat and then dissipate it

into the air. Often in winter one can see the snow melting on the ground over the pipes, which is another telltale sign that the heat is not going where it should,” says **Johnny Jakobsen**, project manager at KWH Pipe Technology.

Insulation with a difference

Old district heating systems consist of pipes insulated with mineral or glass wool and installed in a concrete duct. When the wool gets wet, the insulation properties quickly disappear and the pipe starts to corrode fast.

“Environmental values are taken into account in district heating projects these days. Polyurethane-insulated district heating pipes retain heat much better than the old wool-insulated pipes and therefore save energy,” Jakobsen says.

“Installing KWH district heating pipes minimizes heat loss along the pipeline and ensures that there is plenty of capacity to cope with sudden spikes in demand.”

A district heating pipeline boom is taking place in Russia, as a lot of old pipes are being replaced with polyurethane-insulated pipes. However, many of the pipes on the market are handmade and of poor quality, and there are no leak detection mechanisms. As a result, pipes which in other countries would last for 30 to 50 years often fall apart after only a few years in use in Russia.

In building and repairing district heating networks in cities, many Russian energy companies have discovered that manufacturing district heating pipes themselves locally makes much more sense and costs less than outsourcing pipes from an external supplier. To date, nine Russian pipe manufacturers are using KWH Pipe’s production technology.

“KWH Pipe has been manufacturing pre-insulated pipes since 1976 and has supplied production equipment since the late 1980s. Today we are the only supplier on the market who can deliver all of the equipment needed for a district heating pipe production plant. Having a single supplier makes it easier for the customer to manage a plant project. The customer’s personnel are trained in the production process at a KWH Pipe plant in Finland, and the delivery also includes supervision of installation and startup,” explains Jakobsen.

Yury Kabakov, Project Development Manager Tattteploizolyaciya, Jan Finne, Quality Control Supervisor KWH Pipe, Paula Erkoalahti, Sales Engineer KWH Pipe, Ari Hulkkonen, Head Supervisor KWH Pipe, Johnny Jakobsen, Project Manager KWH Pipe at the Kazan plant.





INFO

- » Plant name: Tatteloizolyaciya

- » Product/project: Production facility for pre-insulated pipes

- » Products: Pre-insulated pipes, DN 50–1,200 mm

- » Delivery:
 - Extruder line for 125–560 mm jacket pipes
 - Extruder line for 710–1,200 mm jacket pipes
 - Insulation line for straight pipes
 - Equipment for production of pipe fittings
 - Quality control laboratory
 - Startup and installation supervision



When a customer buys an entire production line the intention is to install the equipment in a factory hall which meets KWH requirements, provided by the customer.

The design and construction or renovation phase lasts about six months. During this time the production equipment is manufactured and transported to the site. Jakobsen says that production can begin within 8 to 10 months of signing the agreement.

New plant in Kazan starts up

The newest district heating pipe production plant using KWH Pipe manufacturing technology started up in Kazan, Tatarstan, the polyethylene capital of Russia, in February 2008. The company is named OOO Tatteloizolyaciya, whose major customer is its parent company OAO Tatenergo, the energy company of the Republic of Tatarstan. The pre-insulated pipes produced at the plant will be used to build new pipelines and to replace the existing district heating network in Tatarstan.

“We chose KWH manufacturing technology because it’s the most modern on the market. The delivery included two extruder lines for PE jacket pipes with diameters of 125 to 560 mm and 710 to 1,200 mm, sandblasting equipment, a foaming table and two high-pressure foam injection machines, equipment for manufacturing pipe fittings, and equipment for manufacturing galvanized-steel pipes,” says **Yuri Kabakov**, Project Development Manager at Tatteloizolyaciya.

“The project began with us conducting a survey of the manufacturers of the equipment we needed. We sent them a request for tender and selected the supplier on the basis of the tenders received. After agreeing on funding with Russian banks, we worked with KWH to plan the technical project regarding equipment placement and made the necessary alterations to the production plant. The equipment was delivered, and KWH experts helped us install it, test it and start it up,” Kabakov explains.

“Delivery and startup progressed on schedule, and we now have three months’ experience in using the production lines. We have made final tuning and adjustments to the system in cooperation with KWH.”

The new equipment, when fully operational, will require 125 new employees to operate it, according to Kabakov. At the moment, the company is negotiating for delivery of a new production line for pressure pipes.