



ISOPROFLEX-115A PIPE IN SAINT-PETERSBURG

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State Unitary Enterprise “Heat and Energy Company of Saint-Petersburg” started using high-temperature reinforced PEX pipes ISOPROFLEX-115A with working temperature 115°C.

High-temperature heating network replacement during the heating season: this is possible

Historic achievements in the Saint-Petersburg heat supply network started on 25th November 1924 when house number 96, Fontanka Embankment, became the first connection to the system. Now, on 29th November 2011 we have another historic event with the installation of the first flexible plastic heating pipe capable of operating at 115°C, an ISO-PROFLEX-115A reinforced PE-Xa pipe, connecting number 155, Piskarevsky Prospect.

In 2008, the original heating network in this neighbourhood was replaced and a new polyurethane pre-insulated metal pipe was installed. After 3 years of operation, the fast corrosion rate experienced through operation in the Saint-Petersburg open circuit heat distribution system meant these pipes had failed in service and replacement was required. To

Pic. 1. Flexible plastic pipeline with working temperature of 115°C and operating pressure of 1.0 MPa. A few years ago the most faithful supporters of polymer technology into heat energy distribution networks would merely consider this system as a sci-fi idea.



avoid repetition of this, ISOPROFLEX-115A was specified as the preferred replacement option.

Two contracting organizations, UNR-524 POLYMERTEPLO and STROYMONTAJKOMPLEKT, were hired to construct 3 kilometers of replacement heat network on behalf of the State Unitary Enterprise, Heat and Energy Company of Saint Petersburg. The ease of laying meant that the replacement network was laid in less than one week.

The new network was constructed in trenches adjacent to the existing network. Working in difficult conditions, in an old neighbourhood with narrow alleys and a need to maintain pedestrian and road access showed the advantages of the flexibility and long lengths of lightweight heating pipe. Trenches of irregular shapes, with many turns and no access for large engineering machines were addressed by the ISOPROFLEX-115A system which could be threaded through the ground, around obstructions and no fittings or welding in the trench to form the bends.

The layout, installation and commissioning of the new heating network was completed with both the old and new heat pipes working simultaneously. Individual consumers were then transferred from the old to the new network with minimal time without heat, in fact many didn't notice the absence of hot water from the heating network with the short interruption that was needed.

Broadening the temperature scale

Two years have passed since POLYMERTEPLO Group announced new approach to the development of flexible pre-insulated plastic pipes for district heating networks. This approach is based on rejection of the idea of universal plastic pipe, able to replace all the metal pipes in district heating networks, and the development of several types of special multilayer reinforced pipes intended for different temperature ranges.

Pic. 2. ISOPROFLEX-115A (marked by orange identification stripes) are the next evolution of district hot water and heat energy supply networks by means of plastic pipes, following on from ISOPROFLEX-95A (marked by yellow identification stripes).





The first result of developing the ISOPROFLEX system for heat energy networks has been the ability to provide pipes now for working temperatures of 115°C and pressures up to 1.0 MPa. This came to market in 2011 and leading users were MOEC Ltd, State Unitary Enterprise 'Heat & Energy Company of Saint-Petersburg' together with a number of Syberian heating companies. In the period 2011–2012 the new ISOPROFLEX-115A system has experienced full peak service conditions during harsh heating seasons without failures or damage to the pipelines occurring.

Following the ISOPROFLEX-115A system is a flexible pre-insulated reinforced plastic pipe capable of working

Pic. 3. District heating networks were last replaced in 2008 using pre-insulated steel pipes. First repairs of this new steel system started in 3 years, the rate of corrosion in open-circuit heat energy supply network of Saint-Petersburg is extremely high.

Pic. 4. Higher working temperatures make enhanced demands on fitting reliability. To meet these requirements POLYMERTEPLO Group has developed the innovative system of compression fitting units for ISOPROFLEX-115A.



temperatures to 135°C, ISOPROFLEX-135A. This product is currently undergoing full scale system testing, that includes construction of an experimental loop to test pipes under real working conditions and raised temperature loads.

Bringing ISOPROFLEX-135A system to the market will be a real breakthrough, another historic achievement. The emergence of a pipe with a working temperature of 135°C would mean that heating network companies in the European part of Russia, will be able to specify a complete plastic corrosion resistant pipe network, with no requirement for metal pipes, for the first time.

Pic. 5. POLYMERTEPLO Group provides the customer with 49 years of manufacturer warranty for reinforced PE-X pipelines ISOPROFLEX-A. During the coldest heating season in last few years (2011–2012) ISOPROFLEX-115A pipes worked without any incidents.



Pic. 6. Heating network companies from Moscow, Saint-Petersburg, Kiev, Ural district and Siberia have already sent their purchase requisitions for ISOPROFLEX-115A systems for construction season of year 2012.

