

PREINSULATED PIPE SYSTEMS FOR HOT WATER NETWORKS

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Currently for district heating networks the preinsulated pipes are most widely used. The main advantages of preinsulated pipes are:

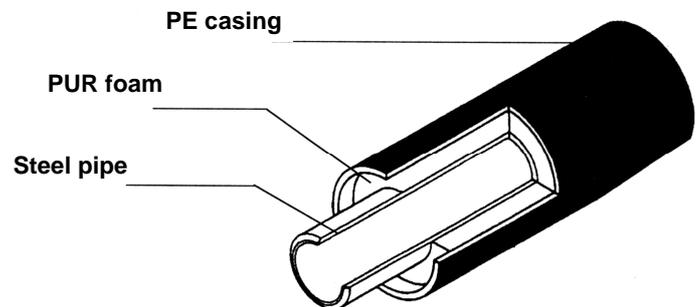
- minimal heat losses;
- long service life (30-50 years) with minimal maintenance demands;
- simple assembly of joints, providing efficient thermal insulation and waterproofing;
- concrete duct is not necessary, pipes are laid in the trench on sand layer;
- electronic moisture surveillance system is available.

“POLIURS” Ltd. has specialized in the production of preinsulated pipes for district heating since January, 1995. Special attention is devoted towards high quality of the product and protection of surrounding environment. Developed quality system is certified according to standards ISO 9001 and ISO 14001. Introduced ISO 9001 and ISO 14001 Quality Management Systems ensure that the products of “POLIURS” Ltd. are manufactured according to the European standards:

- EN 253. District heating pipes - Preinsulated bonded pipe systems for directly buried hot water networks - Pipe assembly of steel service pipes, polyurethane thermal insulation and outer casing of polyethylene.
- EN 448. District heating pipes - Preinsulated bonded pipe systems for directly buried hot water networks - Fitting assemblies of steel service pipes, polyurethane thermal insulation and outer casing of polyethylene.
- EN 488. District heating pipes - Preinsulated bonded pipe systems for directly buried hot water networks - Steel valve assembly for steel service pipes, polyurethane thermal insulation and outer casing of polyethylene.
- EN 489. District heating pipes - Preinsulated bonded pipe systems for directly buried hot water networks - Joint assembly for steel service pipes, polyurethane thermal insulation and outer casing of polyethylene.

In addition to traditional products described in catalogue “POLIURS” Ltd. offers individually designed pipes and fittings on the customer demand. Individual solutions can remarkably reduce the volume of installation works and the expenses required. Company’s staff consults customers in all aspects regarding optimal choice of pipe installation.

A preinsulated bonded pipe for district heating is a sandwich construction consisting of three main components:



- a steel service pipe;
- an insulation of polyurethane foam (PUR);
- an outer casing of high density polyethylene (HDPE).

“Poliurs” Ltd. produces preinsulated bonded pipes and their fittings with diameters of main service pipes from 20 to 800 mm (3/4 - 32 inches). Depending on diameter of used casing pipe for each service pipe 3 different thicknesses of foam insulation layers are possible, 3 insulation series. The heat loss of preinsulated pipelines of Series 3 is 1.3 to 1.6 times less than the heat loss of Series 1 that must be taken into consideration making economical calculation of profitability of pipeline.

“Poliurs” Ltd. also produces preinsulated pipes and fittings for special application:

- preinsulated pipes and fittings with galvanized spiral steel casing;
- pipes and fittings with two layer insulation for temperatures 150 - 250°C;
- preinsulated double pipes and fittings, where under one casing are located two pipes: preheated and return pipes;
- preinsulated pipes with heating cable.

Preinsulated pipes are equipped with alarm system wires that certify pipeline correspondence to the technical specifications when it becomes operational, also makes an operator known in case of a potential accident and discovers its exact location. The surveillance of the pipeline can be automatically. Assortment of preinsulated pipes and fittings enables to construct pipeline in complicated geographical region (including overcoming of water barriers) and in the cities. On costumers’ request, the company can supply fittings of the individualized construction.

Different technical ways and means are offered for compensation of thermal expansion deformation and its effect decrease.

The company meets the customers’ needs concerning additional materials for the assembly of pipeline and fittings.

Company consults and train clients of necessary rules regarding pipe montage, and offers technical surveillance of the pipeline installation (during montage and acceptance of the pipeline).

The company "POLIURS" Ltd. Quality Management System correspondingly to ISO 9001 demands includes all structural entities and staff, which are connected to the production of the heat insulated products and client relationship. The company uses only certified resources for production of pipes, fittings and its accessories. The staff of the company is qualified and certified. All main parameters of the production process are controlled and recorded; staff involved in the production is also registered. That way high level of responsibility is achieved. The personal responsibility for one's own duties is the main guarantee of the company's production.

ISO 9001 and ISO 14001 have been proved and certified by "Bureau Veritas Quality International" that is the leading world firm in certification.

"POLIURS" Ltd. guarantees that the operational time of the manufactured preinsulated bonded pipes and joints is 5 (five) years, if following conditions are fulfilled:

- comply with instructions for transportation, storage, montage and operation, which are included in "Heating main montage instructions CV4.04."
- ensures following pipeline parameters:
 - working pressure ≤ 16 atm;
 - temperature $\leq 150^{\circ}\text{C}$;
 - salinity < 3000 mg/l;
 - pH 9,5 -10;
 - free oxygen not permissible.

The company "POLIURS" Ltd. provides its consumers with the special quality certificate on all their products.

"POLIURS" Ltd. is constantly working on widening its assortment of produced items, improving product quality and offered services.

All steel service pipes, pipe casings and insulation material used in assembly of preinsulated pipes and fittings comply with European Standard - EN 253.

Main parameters:

1. Steel service pipe:

- nominal diameters - 20-800 mm ($\frac{3}{4}$ -32 inches);
- steel grades P235GH EN 10217-2 and P235TR1/2 EN 10217-1 *);
- upper yield strength, min - 235 Mpa;
- tensile strength, min - 360-500 Mpa.

*) other steel grades or standards can be used by agreement, for example:

- Steel 37 DIN 1626

2. Pipe casings:

- material - HDPE;
- wall thickness according to EN 253;
- minimum density - 944 kg/m³.

3. Thermal insulation:

- material - PUR (polyurethane foam);
- PUR components - polyol and isocyanate;
- blowing agent - CYCLOPENTANE;
- conductivity - 0.026 W/m⁰K max.