



Member of Veolia groupe 

- ENVIRONMENTAL AND CITIZEN WELL-BEING RESULTS

The technical solution allow **to satisfy a very important aspects for Town Hall was to minimize the impact of works on the civils construction, opening the road and perturbing circulation and the last avoid destruction of trees on border of road.**

The elasticity of the pre-insulated PB pipes also permitted:

- to maximize the evasion of trees, manholes and other obstacles (which greatly reduced the impact on green spaces)

- the passing of 30 up to 70m sections under other networks: methane gas, drinkable water; sewage; electricity cables; telecommunication cables etc, through their curving and sliding on a 10 cm sand layer.

- the passing of the main access road of Otopeni has been made possible through the prior concrete duct in spite of extremely restrictive spaces due to the presence of buildings only 6-10 m away from the duct entrance.

- It was also possible to avoid affecting some alleys, streets, parking spaces and green spaces through the use of the old concrete ducts created in the 80's for the transportation of geothermal water, through which 70m sections have been slid through a very narrow space.

- ECONOMIC AND FINANCIAL RESULTS

Last criteria for Dalia Romania was the competitiveness of solution.

Taking in account:

- the life time 50 years old**

- the reduction of installation time (machinery and Manpower)**

- the reduction of volumes of civils construction works (wild of trenches, avoid opening in road street,)**

In total the solution pipe plus installation lead to a direct **reduction by 25% compared to the classical installation costs of steel pre-insulated pipes and to 40% if we integrated the life time (cost avoid to change the new pipe installed).**

**Director of Agency Bucharest Ilfov
In charge of project**



Technical Director



Recommendation letter

In 2013, Dalkia Romania has implemented an innovated solution Thermaflex pipe, with FLEXIBLE PREINSULATED POLIBUTHYLENE (FPPB pipe) technologies.

Dalkia Romania has performed major renovation and optimization works on heating network system in town Otopeni close to the capital Bucharest by interconnection boiler house, new condensation boiler and reparation major weak point on network.

The scope of works:

- 950 m for intyreconxiions => 1,8 km of pipe
- 750 m for reparations weaks points => 1,5 km of pipe

Dalkia Romania choosed the thermaflex solution based on following criteria's and constraints imposed by Town Hall and project itself:

- TECHNICAL ISSUES:

3 mains technical reasons lead to Thermaflex solution:

First Dalkia Romania wanted a solution adapted to low temperature network at 40C (+10C) / 70 C (-15C) with very long time life cycle. This solution guarantee 50 years life time.

Second technical aspect was to find solution which allow to minimized civil works and surface reparation. The solutions with flexible pipe allow minimizing size of trenches and also maximazing way in green space avoiding to destroy trees.

Third technical aspects was a solution quick to install the 3,5 km in shortest time. The solution allow welding of flexible sticks of 11,8 m outside of trenches and the possibilities to weld line of 30 up to 70 m sections out trenches' which can rapidly placed into the curvy trenches without the need of installing direction changing fittings.

These aspects allowed to lead to a reduction of 50 % in installation time compared to pre-insulated steel pipe solutions.