



5E GEN WARMTENET

AQUATHERMIE VIA
DRINKWATER

WARMTENET DE VOERMAN

Anzegem

Development of a heat network based on Aquathermy



Status

2022 - ongoing



Services:

Industrial MEP



Sectors:

Industry: Manufacturing



Client:

INTERCOMMUNALE LEIEDAL



In the South-West Flemish town of Anzegem, Intercommunale Leiedal is replacing an old concrete factory with a new neighborhood featuring a mix of housing, work, and recreation. Notably, the base heating and cooling for the buildings is extracted from a main drinking water pipeline of De Watergroep. The 13 municipalities in South-West Flanders commit through a Covenant of Mayors to emit 40 percent less CO₂ between 2005 and 2030 and to become an energy-neutral region by 2050. Renewable energy and sustainable heat delivered to users via a heat network plays an important role in this transition. During the reconversion of the old Douterloigne site along the Vichtsesteenweg, De Watergroep also saw opportunities. On the site, 32 single-family homes and about eight SME units are being built. A third of the site is designed as a green lung with water and play areas.

River replaced by drinking water

At BM Engineering, we have meanwhile built up very extensive experience and expertise with neutral heat networks – with a constant temperature of 12°C – that use a BEO field (Borehole Energy Storage) as an energy source. However, the boreholes required for the construction of such a field are always a substantial cost in such projects. At the De Voerman site, the – much cheaper – alternative was almost handed on a silver platter. The large supply artery of the water pipeline, which serves large parts of the hinterland of Kortrijk and Anzegem, runs along the Diepgrondstraat, in the immediate vicinity of the site. Where aquathermy normally extracts energy from the temperature and flow of an open river, here it is replaced by that closed pipeline of De Watergroep.

5th generation heat network

This heat network is an example of a 5th generation heat network. In a 1st generation heat network, water at a temperature of 100°C was pumped through the pipes. At De Voerman, that temperature will be up to 10 times lower (10 to 15°C). The advantage is also that almost no energy is lost along the way.

Secondary circuit – decentralized heat pumps

A heat exchanger that taps into the main water pipeline of De Watergroep extracts about 4 degrees of heat or cold from the flowing drinking water. The primary and secondary circuits are separated via heat exchangers. Care is also taken to ensure that the water injected back into the drinking water network is never warmer than 25°C and never colder than 4°C (to avoid frost risk). BM Engineering designed the secondary network on the site, which through individual heat pumps in each home and SME unit provides heating and passive cooling, as well as domestic hot water preparation.

Towards energy-neutral neighborhoods

By making use of an energy source present in the vicinity of the site, De Voerman achieves a win-win: the energy source is sustainable and the energy can be captured with an installation that requires a smaller investment than geothermal energy. In this way, BM Engineering develops a neutral energy network in consultation with Leiedal and contributes to the development of energy-neutral sustainable neighborhoods.

Construction partners:

- Intercommunale Leiedal – project developer
- De Watergroep – owner of the drinking water pipeline
- BM Engineering (Kortrijk) – engineering firm for special techniques: design of the secondary network + study of connections for homes and SME units