TUHH
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Highly Efficient Geothermal Energy Exploitation

Focus Sectors
- Green Energy
- Geothermal Energy
- Civil Engineering

Project Key Words
- Geothermics
- Ground Water
- Climatisation

Development Status
- Upscaling Test is running

Patent Procedure Status
- EP Patent granted
- DE Patent granted
- FR Patent granted
- GB Patent granted
- DK Patent granted
- NL Patent granted

Chances for Cooperation
- F&E Cooperation
- Licensing
- Patent Sales

Innovation and Customer Benefit

The state of the art implementation of Ground Source Heat Pumps is showing that all the extraction of geothermal energy suffers from static ground water and does not allow for full exploitation of its potential.

The invention relates to a new procedure exploiting temperature levels in ground-water charged soil.
The technology is based on the known Ground Source Heat Pump Technique, enhanced by an artificially induced ground-water circulation.

The technology expands the idea implemented in various climatisation techniques, where constant ground temperature level is used for cooling and heating systems.
The technology is clearly much less dependant on the capacity of the soil to transport and transmit heat.

The main customer benefits are thus:

- Increased geothermical output
- Higher thermal efficiency

Possible Applications

The technology can be applied especially in the following areas:

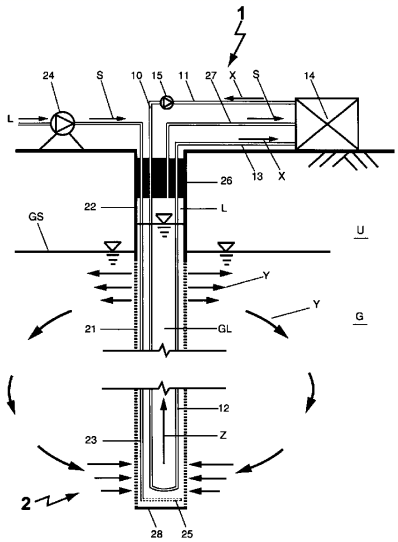
- Civil engineering
- Housing

Technical Description

The invention optimizes the exploitation of near-surface geothermal energy.
The technology is based on a geothermal device involving a circulation system for a thermal carrier-medium. This circulation system is connected in flow direction of the thermal carrier-medium to both ground-water charged soil and over-ground heat-exchanging device.

Combining the known geothermal devices with the principle of the ground-water circulation well, an extensive ground-water circulation is generated. This leads to an increased advective heat transfer and thus to an optimized geothermical output.

Ground-water circulation is usually induced by the injection of gas, especially air.



Picture 1: sectional view of the system

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Schutz von Ideen für die gewerbliche Nutzung