



I Congreso de Energía Geotérmica en la Edificación y la Industria

Venue: NH Hotel Eurobuilding

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Ground Source Energy Collectors?

GEOHERMAL HEAT EXCHANGE SYSTEMS

- *Surface Exchange Systems*
- *Coaxial Collectors*
- *Basket Collectors*
- *Borehole Heating (and cooling) Exchange System*





Before you decide on your BHE collector?

- *Are there any regulations/norms you have to follow in your region?*
- *What is the geology like (gravel, clay, rock, etc.)?*
- *How are you drilling (air or water)?*
- *How deep do you plan to drill?*
- *How many boreholes?*
- *Must you grout the borehole afterwards?*
- *Is your installation for heat or cooling or both?*
- *What kind of Collector should I choose?*



Before you decide your BHE collector?

- *What are the pros and against in concern to Single-U compared with Double-U?*

- | | |
|--------------------------------|---|
| • <i>Single-U</i> | <i>Double-U</i> |
| • <i>Cheaper than Double-U</i> | <i>More expensive</i> |
| • <i>Easier to install</i> | <i>Heavy and not so easy to install</i> |
| • <i>Requires less brine</i> | <i>More brine needed</i> |
| • <i>Less energy extracted</i> | <i>15% more energy extracted</i> |

When you have to decide what kind of pressure class you want, the terms to know are PN and the SDR terms. Both indicate the wall thickness of the pipe and the plastic material used.





Single-U



Double-U





Before you decide on your BHE collector?

- ***You can choose from the following combinations:***

Type A - 2x40mm PN8/SDR17 PE80 – wall thickness 2,4mm

Type B - 4x32mm PN8/SDR17 PE80 – wall thickness 2,0mm

Type C - 2x40mm PN12.5/SDR11 PE80 – wall thickness 3,7mm

Type D - 4x32mm PN12.5/SDR11 PE80 – wall thickness 2,9mm

Type E - 2x40mm PN16/SDR11 PE100 – wall thickness 3,7mm

Type F - 4x32mm PN16/SDR11 PE100 – wall thickness 2,9mm

- ***What are the pro and against in concern to PE80 compared with PE100?***
- ***Why choose a high pressure class such as PN16?***
- ***But can it stand the pressure?***





Before you decide on your BHE collector?

- *Conclusion...?*

Therefore if the authorities do not demand PE100 collectors advise your customer to choose a PE80 collector with as thin wall thickness as possible PN8 or PN12.5.

If they do so, they will get the most optimal BHE installation providing them with the maximum amount of energy.



Before you decide on your BHE collector?

- ***Bonus Information***

On September 19th a new high performance BHE Collector type was introduced. It is called The Turbulence Collector and is based on Turbulence being created inside the pipe.

This collector is able to:

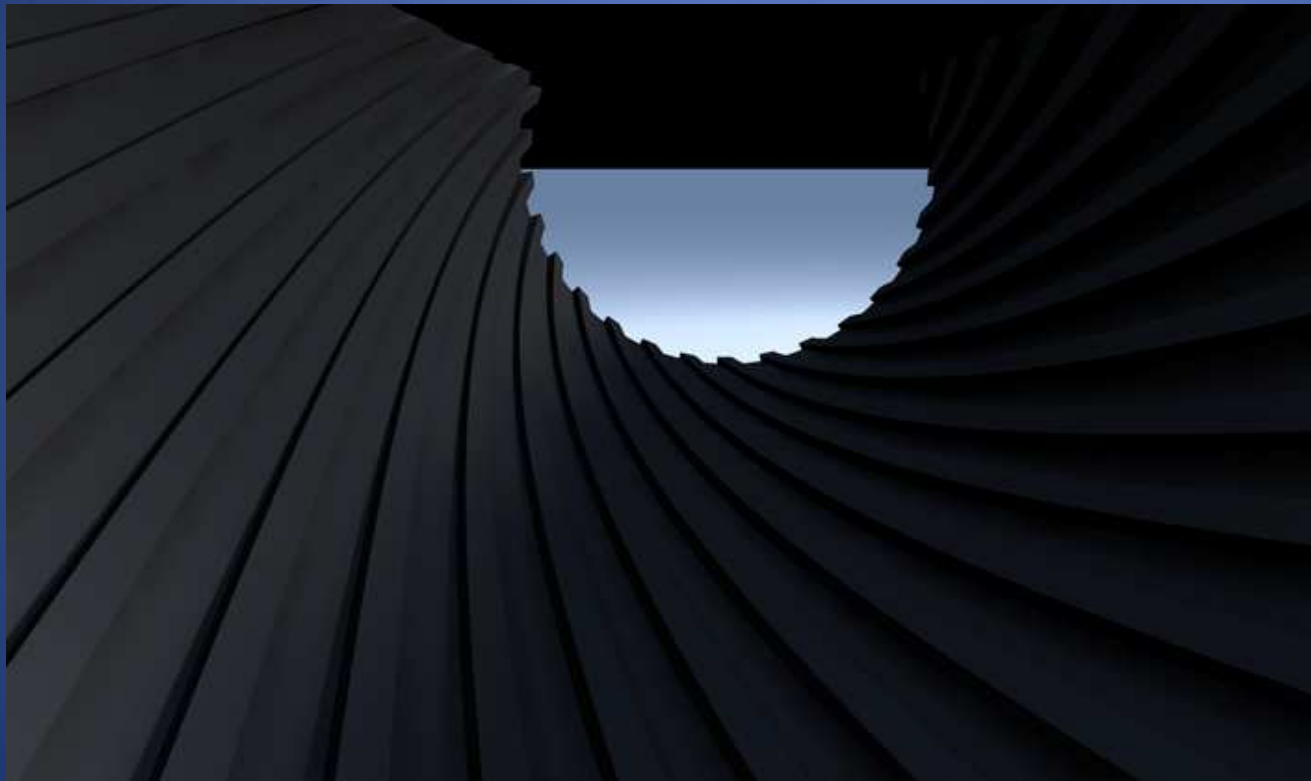
Extract approximately 15% more energy from the ground than current collectors on the market,

Give 15% less pressure loss resulting in higher COP and better running costs for the heat pump





The Turbulence Collector by Muovitech





You will find more technical and normative information in the documentation presented to the congress under the title:

- **Geothermal Energy Collectors, norms and material requirements for energy collectors in geothermal installations**

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