

Quality Criteria for Ground-Source Heat Pumps



Industrie Service

Development of quality criteria in accordance with VDI 4640, Parts 1 to 4

Quality inspection from design to construction and operation

Choose certainty.
Add value.

1. Design

- ▶ Review of energy concept (numerical simulation)
- ▶ Site assessment by geologists (heat conductivity)
- ▶ Estimation of specific energy extraction output values
- ▶ Calculation of heat-collector length
- ▶ Selection of heat pump design

2. Approval management

- ▶ Water authorities (subsoil and water-related aspects)
- ▶ Federal water legislation WHG (> 100 m Mining act, BBergG)

3. Heat collector borehole system

- ▶ Choice of individual type, required properties for productivity
- ▶ Certification of manufacturer

Water-unsaturated soil zone

Aquifere

4. Drilling

- ▶ Selection of drilling contractor (references, skilled personnel)
- ▶ Type of drilling method
- ▶ Drilling depth
- ▶ Diameter of borehole
- ▶ Auxiliary casing

8. Heat pump

- ▶ Efficiency of heat-pump operation
- ▶ Achievement of COP (coefficient of performance [3.9-5.1])
- ▶ Aligned low temperature heating systems (e.g. underfloor heating)

7. Installation

- ▶ Loop depth of heat-transfer pipes
- ▶ Laying pipes in sand bed
- ▶ Proof test

