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GEOthermal Technology for economic Cooling and Heating



GEOTeCH

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Collaborative Project

Manufacturing specifications

Executive Summary

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1. PUBLISHABLE EXECUTIVE SUMMARY

In work package 2 of the GEOTeCH consortium a dry drilling methodology is developed based on hollow stem auger drilling. The drilling rig for this purpose has been developed to a prototype level, together with the required augers.

Field trials have been carried out with the rig and augers and results of these trials have been described in deliverable report 2.4 - Report on the field trials of the augers and drill rig.

This deliverable report relates to task 2.5, 2.6 and 2.8 in which the design of the drill rig and production facilities for augers are addressed. In this deliverable report the manufacturing specifications and considerations of the final design drilling rig and auger manufacturing facilities are described. Also an operation manual, instructions and protocols for operation and heat exchanger installation are described.

In this report the following technical information is provided:

- The production facility for the hollow stem augers as it has been developed and implemented at Conrad-Stanen is presented, as is the construction process and equipment used in manufacturing the augers.
- The final design and construction of the drilling rig for auger drilling are described, as necessary clarified and documented.

The selection, development, design, testing of the hollow stem augers has been described in detail in the deliverable D2.2. In the current deliverable the focus is on the manufacturing process in the new facilities at the Conrad-Stanen factory in Emmeloord.

Similar to the development of the hollow stem augers the concept development and testing of the prototype drill rig has been described in previous deliverables such as D2.3 and D2.4.

The findings described in these deliverables and the experience gained by having a prototype drill rig available for testing not only the drill rig and its components but also testing the augers and auger handling has been very valuable throughout.



Figure 1: Prototype drill rig on Leicester demo site

During the construction process of the new drill rig the prototype version is still available for testing individual components.

The results of work carried out in WP2 thus far has provided the necessary information for the specifications which are described in this deliverable report.

This deliverable report relates to the task 2.5, task 2.6 and task 2.8 as described in the GEOTeCH work package description (DOW):

- Basic production (part robotized) line for CAM (Computer Aided Manufacturing) of augers is operational.
- Production manuals for tooling and drill rig ready.
- This means that a technical description of all items has to be complete which enables us to produce the final design drilling rig for the GEOTeCH project, including all specific equipment as developed.
- Also an instruction manual has to be completed which enables the drilling rig operator to operate the rig within the design parameters and understand the specific details of the heat exchanger installation process.