



# ThermoDrill

Fast track innovative drilling system for deep geothermal challenges

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<http://www.thermodrill-h2020.org/>

[https://www.youtube.com/watch?time\\_continue=19&v=MZVo9r2Qldc](https://www.youtube.com/watch?time_continue=19&v=MZVo9r2Qldc)



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## Project description:

- Develop an innovative drilling system which will enable faster and cost-efficient drilling in geothermal applications (HT/HP in crystalline rock)
- Increase the rate of penetration by 100 % and reduce costs for well construction by 30 %
- The concept is based on a combination of rotary drilling with high pressure (velocity) fluid jets – jet assisted mechanical rock destruction
- Development of novel components to implement the system in state of the art drilling equipment – especially innovative bit design and drilling fluid



## Intermediate Results:

- Jetting and system parameters were identified to maintain a sufficient jet cutting performance, even under high back (hydrostatic) pressure conditions
- A drilling fluid, suitable for at least up to 150 °C was formulated and tested in the laboratory
- Novel components were developed, especially two innovative drill bit prototypes were designed, manufactured and tested
- Large scale laboratory drilling experiments ( 8 ½ “ bit size) were successfully performed with hard to drill granite -> ROP increase > 70 % compared to a standard Roller Cone bit
- Performance predictions for weaker formations indicate distinctly higher increase in ROP

