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### New Drilling Tools for Hard Rock

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Nowadays the Kelly rotary drilling method is the most common way of installing bored piles around the world. When it comes to drill into rock or cut through boulders people face difficulties regarding drilling performance and wear and tear. The challenge is to develop a drilling tool which can be combined with the Kelly rotary method.

For common geology such as sand, gravel or clay layers there are plenty tools available on the market. Equipped with either flat teeth or round shank chisels these tools work perfectly even for rock strengths up to 100 MPa. For harder rock conditions or boulders one solution could be to drop a massive chisel and destroy the rock with a huge impact. Even though this technique is still being used in some countries, the rather slow performance leads to looking into alternatives.

With the latest developments it is now possible still using the rotary drilling method and by just changing the drilling tool, rock strengths up to 300 MPa can be loosened and transported. This technical progress now enables one to use the rotary drilling rig in Kelly mode for penetrating through the overburden and also for cutting across very hard rock conditions.

For rock socketing purposes roller bit tools with air flushing are usually used. One of the latest developments is a tool which can cope with extremely hard rock, sloping rock surfaces or even boulders of any size. The New Bauer MHD System employs; Proven, Rotary Air Percussion Technology to advance the Rock Socket quickly and economically.

This paper will give a short overview of commonly used drilling tools before the latest developments, will be introduced. First projects in Scandinavian countries as well as different reference projects will complete the explanations.

**Keywords:** Hard rock drilling, MHD.

### References

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