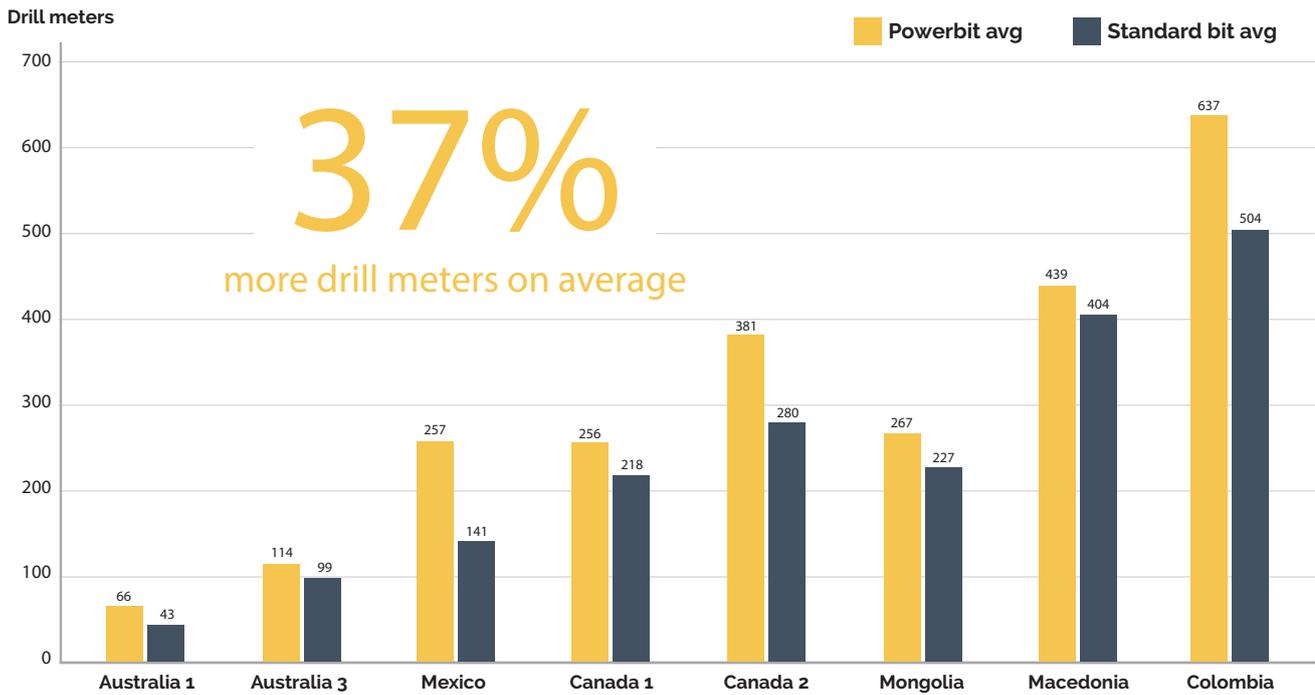
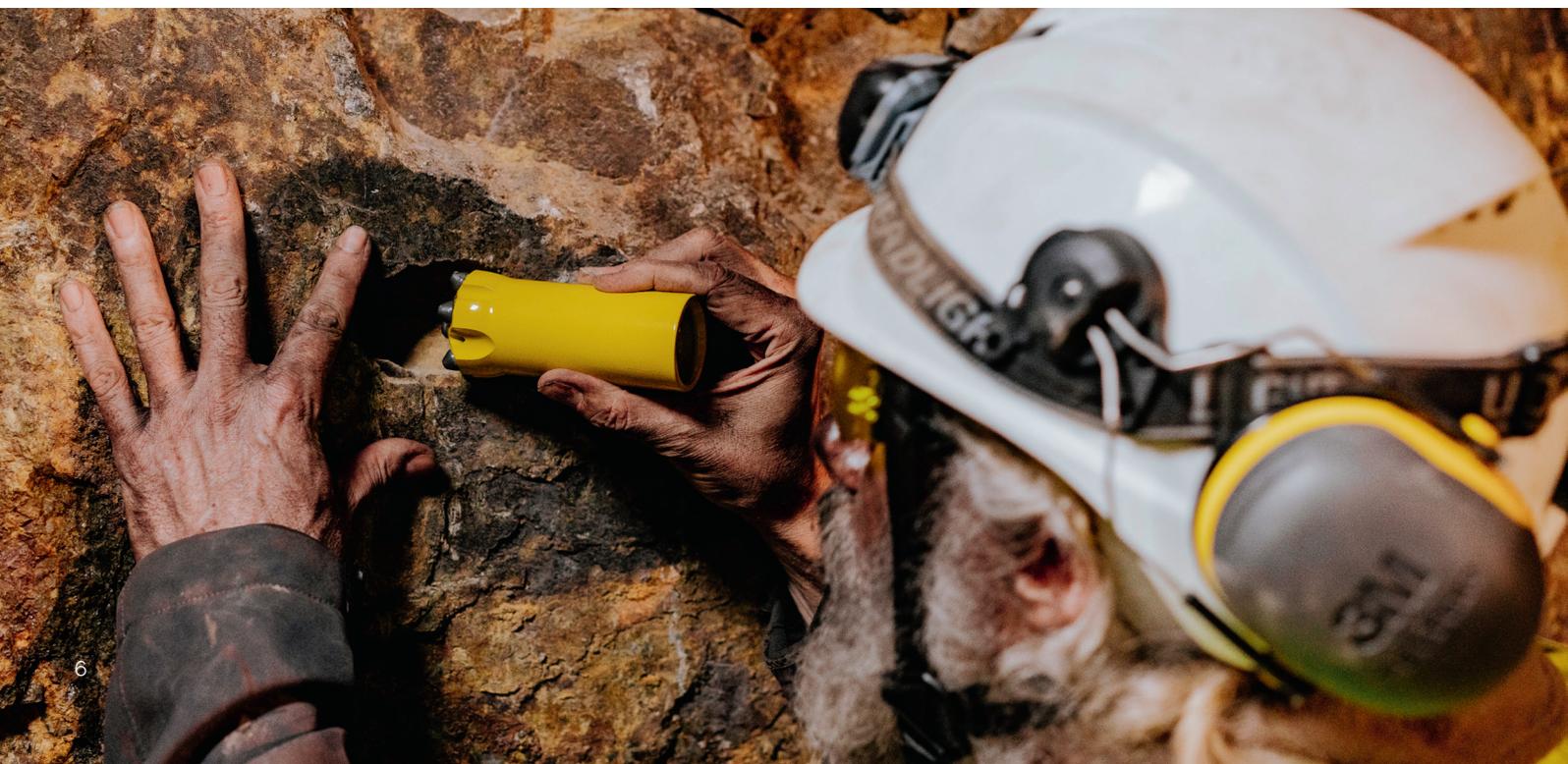


Proven performance

Powerbit Underground has been put to the test in numerous drill tests. Before launch, we carried out thousands of drillings across the globe in collaboration with selected customers. The tests were made independently and offer strong evidence of the new bit's superior performance. See for yourself!



Test results show that Powerbit Underground provides 37 percent more drill metres on average before bit discard than a standard drill bit. The chart shows the location of the test mines used for testing.



A closer look at our tests

So how did we test Powerbit Underground? Let's have a closer look at two of our test sites, specifically. Here we present some crucial test characteristics including typical rock type and equipment used.

Mexico

Site characteristics

The test mine is located in northern Mexico, in a district well-known for mining. The main mineral is zinc followed by lead and copper. The rock offers challenging conditions due to the presence of quartz, pyrite and magnetite.

Method

The test was conducted in development drilling, both in waste rock and in the ore itself. Ten drillings were made to measure both drilled metres and penetration rate. The results are in comparison with a standard 45 mm bit.

Equipment

- Drill rig: **Tamrock Axera**
- Rock drill: **Sandvik HLX5**
- Flushing pressure: **2-6 bar at 30-35 liters/min**
- Drill bit: **Powerbit Underground 45mm**
- Buttons: **Trubbnos trapezoid-shaped buttons**

Results

Penetration rate

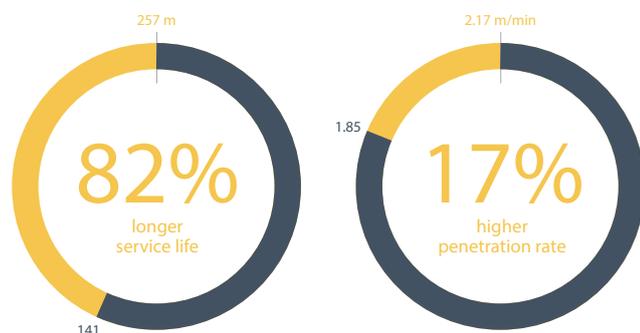
Standard bit: **1.85 meters/min**

Powerbit Underground: **2.17 meters/min**

Service life

Standard bit: **141 meters**

Powerbit Underground: **257 meters**



The average service life was 82% longer with Powerbit Underground, which has a direct impact on the cost per metre for the bit.

The average penetration rate was 17% higher with Powerbit Underground, which has a direct impact on the energy consumption of drilling.

South Korea

Site characteristics

Powerbit Underground was tested at a tunnelling project for a road construction, outside Seoul, South Korea. The test was conducted in excellent collaboration with the customer.

Method

The test was conducted in igneous formations, which consists of medium to hard rock with pockets of clay. Powerbit Underground was benchmarked against a standard model 39 semi-ballistic bit.

Equipment

- Drill rig: **Epiroc Rocket Boomer E3**
- Rock drill: **Epiroc COP 3038 rock drills**
- Drill bit: **Powerbit Underground 45mm**
- Buttons: **Trubbnos trapezoid-shaped buttons**
- Grinding equipment: **Epiroc Grindmatic BQ3**

Results

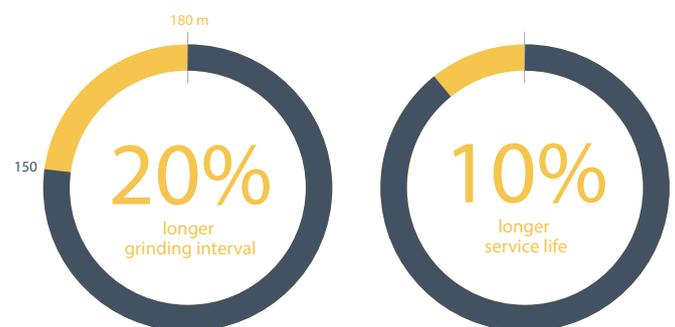
Grinding interval

Standard bit: **150 meters**

Powerbit Underground: **180 meters**

Service life

10% longer



The average grinding interval was almost 20% longer with Powerbit Underground. The bit proved highly effective on mixed rock, performing well in the igneous formations on site. The high flushing capacity was effective on soft clay pockets.