

Keeping utilities close at hand.

Underground miners need access to water, electricity, compressed air and a range of other utilities, preferably located in the same unit and conveniently close to their workplaces.

Water, electricity, compressed air, communication connections and fill material are just some of the important utilities used by underground miners every day. And the first three examples usually go hand in hand with mine development.

But while these essential services, sometimes referred to as media, may be bundled and conveniently located, the moment that an extension is delayed it tends to cause irritation among mine personnel and slows down operations as an unwanted result.

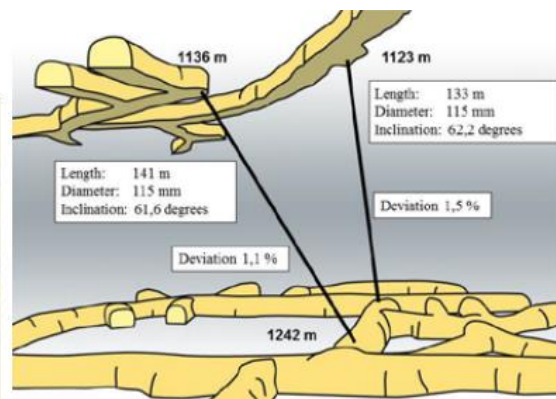
It is common practice at a great many mines for utilities to be “run” down to the mining areas from the surface using cables and pipes installed inside ventilation or skip shafts or fixed to the walls or roofs of ramps and roadways.

This method involves the use of extreme lengths of cabling and pipelines, in some cases covering distances of several kilometres, which is not only enormously expensive but also involves a huge risk of faults or leakages in a multitude of couplings and joints.

In addition, the final access points deep in the mine are rarely found in the most practical or convenient locations, and the same principle applies when it comes to access points for auxiliary materials, such as hydraulic fill and water drainage.



The Rig Control System (RCS) keeps deviation in drilling below 1.5%.



Utility holes for drainage drilled with a Simba rig equipped with a Wassara W100 water-powered ITH hammer. Maximum accuracy is crucial in order to reach the desired location at the lower level.

In modern development, the most practical and convenient way of providing efficient access to utilities and materials is to install vertical utility holes specially designed for this purpose.

These holes, also known as service holes, should be driven from the surface or between levels the shortest practical way using topammer drill rigs, or ITH/DTH (in-the-hole/down-the-hole) rigs such as Atlas Copco Simba rigs, if the holes are especially long. And when it comes to installing longer utility holes for water drainage or holes for paste backfill, raiseboring machines have proven to be an ideal choice using pilot drilling.

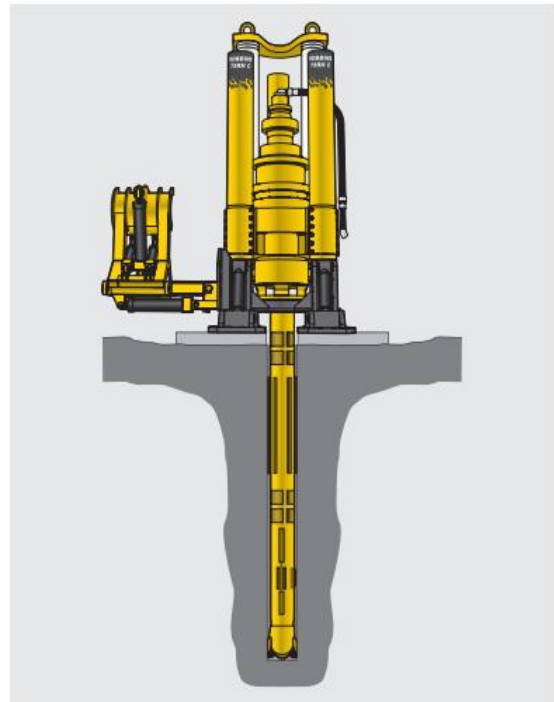
Dedicated utility holes may not always be possible to install in very weak rock formations or rock that is prone to sliding, but it is considered to be the best alternative for most mine types.

The economic benefits of installing utility holes are clear, not least in terms of the cost savings that can be realized due to the shorter distances involved and, therefore, the shorter lengths of cabling and pipe that are required.

In addition, well placed, easily accessible utilities down in the mine makes life easier for the miners, which in turn contributes to productivity.

As in all matters concerning preparations, many of these utility holes should be conceived and designed carefully in the mine planning stage so that they become a natural step in the development of the mine. Utility holes can be drilled to a wide range of dimensions and lengths to accommodate the various needs of the mine in the best possible way.

Apart from electrical service holes, paste fill or slurry holes, and water-drainage holes, it may also be necessary to plan for the installation of geophones that monitor seismicity, applying the same utility hole system.



Raiseboring machine suitably used for pilot-hole drilling.

To summarize, utility holes may be used to accommodate the following needs and installations:

- Electricity
- Water drainage
- Compressed air
- Seismic monitoring
- Paste fill or slurry

Both Simba drill rigs and raiseboring machines are typically used for these holes. Whatever type of utility needed, careful planning and high precision in drilling with as low deviation as possible, no greater than 1-1.5%, is often a prerequisite for reliable service installations.