

Driller

Drillers are a type of machine used in both above and belowground mining. There are lots of kinds of drillers. Drillers are mostly used to create small holes. Miners put explosives in those holes which are set off to deepen the drifts. Drillers are very precise machines, since the explosives need to go off just right to make sure the mine is stable and safe. There are many kinds of drills. This list isn't all of them, just a few.

Auger Drilling



Photo by Adrian S. Pye

Auger drills are versatile. That means they can be used for lots of different things, in lots of different ways. They are used in mining to find the best places to mount bigger drills. The auger drill is manually rotated into the ground.

Bore Drills



Photo by Lilly S.

Bore drills are used for work that is less precise, and calls for bigger holes. They are most often used to connect layers of a mine without explosives, drilling in a vertical or horizontal direction. Bore drills have multiple drill bits on a platform. The platform rotates, turning all of the drill bits. The drill bits also rotate on their own. Rather than the screw shape of the auger drill, the drill bits on a bore drill have teeth connected to the conical surface.

Excavator



Photo by Matthew T. Rader

When we imagine an excavator, this is the machine that comes to mind. This is an excavator for above ground mining. There are many hinges on this machine to help it scoop, and the bucket is shaped to make digging easier. Underground, excavators need some adaptations.

Underground excavators are often smaller and more compact. They often use hydraulics, which are safer underground, and some can be remote controlled.



Photo by Dars d.d.

You can see that this excavator is shaped like the above ground one, but it's smaller to fit in the drift, and it doesn't have a cab because it's remote controlled. It's in shadow in this photo, but the bucket has the same shape as the above ground excavator, and it also uses hinges to help the arm move.

Front End Loader



Photo by Calistemon

A front end loader has a specially shaped scoop to help it dig and to pick up materials. It uses hinges to help the arm move, and is mobile, using wheels or a grouser.

A grouser is the name for this style of movement. The part with tread around the outside is called the track. The wheels on the bottom left and right are called idler wheels. Between those, on the bottom, protected by the sheet metal, are bottom rollers (a set of smaller wheels) and a recoil spring. The gear at the top is called the sprocket, and there are top rollers between the sprocket and the bottom idler wheel. How many simple machines can you count in a grouser?

Photo by Ruslan Mikaelian



Check out this link for more on grousers: <https://www.hrparts.com/blog/post/parts-bulldozer-undercarriage-diagram>

Haul Truck

Dump trucks come in all shapes and sizes, but they have a few features in common:

- they are driven on wheels
- they have a cab where people sit to operate them
- they have a large container for holding materials
- They have a hinge system which lets the material be dumped out from the back or the side
- The container can be raised



Photo by ScottSLM



Photo by Phil Whitehouse.

Haul trucks are used in mining above and below ground. They are a type of dump truck, but you can tell them apart by a few features, including:

1. The front of the tipper covers the cab, and the back is pointed upward.
2. Special tread for going off the road.
3. Powerful brakes.

Rock Truck

The rock truck is a type of dump truck. Unlike other dump trucks, the cab is connected to the trailer on a joint. That means it can take tighter turns and move better in narrower areas.



Photo by InsaPictures

Like other dump trucks, the trailer can be lifted on an angle to be emptied. It is also road safe, and can drive on highways as well as off road.



Photo by ScottSLM