

14 FACTORS ASSOCIATED WITH THE INSTALLATION OF A ROCK-BOLT

The quality of roof support achieved with rock bolts depends more on the quality of installation, than on the theoretical strength of the bolts.

The cost of installing rock bolts is high. How high depends on many things: the method of mining, the method of installing bolts, the accessories used with the bolts, how many bolts must be installed to guarantee adequate support of the rock and, most of all, how well they are installed.

The factors that affect the price of installation are as follows:

1. The cost of the fixture or rock bolt.
2. Other installation materials such as expander shell, cement, resin or silicate cartridge.
3. As rock bolts are seldom installed without accessories, we have the cost of such items as washers, bearing plates, strapping, wire mesh and wooden blocks.
4. Some of these materials as well as some types of rock bolts are more susceptible to loss and damage than others, and this must be taken into consideration.
5. The costs of transportation to the mine as well as internal transport.
6. Installation costs include the various pieces of equipment used to install bolts and the replacement and repair costs on this equipment. The main methods of installation are manual, using a hydraulic device or using a pneumatic device. Also included in the installation cost is the labour.
7. The cost of drilling a hole; the length and diameter may vary for different types of bolts.

8. The most important cost is the cost of unsuccessful installation. This is also the most difficult to estimate. But it is this that determines the number of bolts required.
9. The regulations often require that representative samples of the bolts installed be pulled and torque tested.
10. Servicing of rock bolts is also costly. Mechanical bolts lose their tension and must be retorqued.
11. If screening is used and new holes are required to overlap the screen, this adds greatly to the bolting cost.
12. Sometimes screening is carried out throughout a tunnel while it is required in some portions only. The reason for this is the high cost of coming back to drill and install the screen. Some bolt types can be fitted with screen after installation and some cannot.
13. If insufficient bolts or poor installations result in rock falls that disrupt production and rebolting is required, the cost is greatly increased.
14. The speed of the installation of bolts increases production and affects the costs.

No matter the type of accessories used, a proper installation is crucial. The proper use of IPKON's silicate capsules in conjunction with rock bolts can greatly minimize the risk of faulty installation and can reduce the global cost of rock support.

For additional information, please, visit our website <http://www.ipkon.org>.