

Combined bolt with the inorganic filler

Atrushkevich O.A., the doc. of tech. s.

Scientific and practical experience established the low effectiveness of all forms of arch and frame supports without the preliminary thrust i.e., these forms of supports don't have an initial load. They are protective, do not strength a summary manufactures, they are labor-consuming in the installation, and they also have the limited field of application in the effectiveness. Moreover, the time factor speeds the manufacture's summary. It decreases the stability of the support and significantly complicates the work of the mechanized supports in the coalmining. As a whole the application of these supports excludes the possibility of applying the mining conveyer-line technology.

In the world's practice there is a widespread usage of the arch supports which provides the species of the arch in the mining, and excludes any caving of an arch. There were bolts with the wedge and jaw- wedge locks by Puzyrev that were ones of the first widely used in the working practice.

However, this form of roof boltings is used for the fixation a hard rock's lock in the fixation area. Specifically, this circumstance sharply limits the application's area such forms of a roof bolting. The problem of the development of anchor-core forms with the quick-setting organic fillers was sharply designated. These highly effective forms of a bolt have found a wide application in the mining works. In essence all forms of such supports' type are reduced down the core anchors with the ampoule filler by the organic quick-setting compositions. This support's form considerably expands the application's area of a roof bolting due to the mass fixation throughout the entire length of anchor's core.

However, the experience of the application such forms of roof bolting in the Kuzbass coalmining enterprises in the different mining and geological conditions shows that the parameters do not meet requirements. Moreover, the Russian roof bolting contains deficiencies which must be scientifically and experimentally proven and excluded. The process of installation and a core must be structurally improved. The main disadvantages include:

1. Core's and mass fixation area is going in the free regime without the pressure and the trust.
2. The way of destruction and stirring composition with the round core can not provide mixture's properties, and therefore the process of fixation is a no homogeneous, substandard and uncontrolled.
3. Organic compositions are subject to aging and sharply decrease the strength.
4. In the conditions of a rock's inroad of water the application of this support is practically impossible.
5. Practically there is no possibility to install anchors on the depth about of 3-10 m.