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论文

新型高预应力锚杆支护技术的研究及应用

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摘要：

在总结和研究了巷道围岩与锚杆支护体共同变形破坏规律的基础上，试验研制了具有高预应力的新型钢绞线锚杆.新型锚杆可提供强大的高预应力，能够很好地控制围岩产生的有害变形，实现锚杆与围岩的同步变形，更好地发挥围岩的自承能力.同时预应力钢绞线锚杆安装后不易松动，受外界放炮震动影响小，锚杆材料强度大，用于巷道支护后不仅技术上可行，而且同等支护强度条件下能够降低支护成本，对深部矿井软岩支护具有重要的推广应用价值.

关键词： 预应力;钢绞线锚杆；延伸率；同步承载

Research and appication on the supporting technology of a new high-prestressed bolt

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Abstract:

The mechanism of jointly deformation-failures between roadway surrounding rock and bolt-support system were studied and summarized. A new steel strand bolt with high pretension stress was developed in this experiment. This kind of bolt can provide high pre-stress and effectively control the harmful deformation of surrounding rock. In addition, the synchronous deformation between the bolt and rock was achieved, and the self-support power of the bolt can be effectually exerted. At the same time, the prestressed steel-strand bolt is difficult to be made flexible after being fixed, and is less influenced by shock wave. It was shown that this steel-strand bolt is technically feasible for supporting in roadway and can reduce the cost of support in the same strength condition. It also has the vale of having a wide spread in engineering application as a supporting-system to soft rock in deep mines.

Keywords: prestress; steel-strand bolt; elongation; synchronous load bearing

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