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论文

济三煤矿沿空巷道矿压显现规律研究

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摘要：

针对济三煤矿综放工作面断层发育、坚硬顶板围岩地质条件,设计了综放面小煤柱沿空巷道锚杆(索)支护参数.巷道在施工过程中,采用顶板离层仪和钻孔窥视仪,较系统地观测研究了沿空掘巷矿压显现规律.研究结果表明:巷道顶板下沉量较小,锚固区内外岩层离层量小巷道掘进影响区范围为50m左右;巷道底臌较严重,巷道两帮移近明显,围岩收敛后巷道由矩形断面变形成为倒梯形断面;沿空巷道煤柱中节理裂隙十分发育,煤体压缩变形成为块状结构的塑性松散体.综放面回采期间巷道断面大小满足使用要求,说明了沿空巷道锚杆支护,能够经受住综放工作面采动影响,锚杆支护试验取得了成功.研究成果在综放面沿空掘巷中进行了推广应用.

关键词： 煤矿;锚杆支护;回采巷道;围岩变形;矿压显现

The laws of strata behavior for the gob-side tailgate in the Jining No.3 Coal Mine

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Abstract:

Based on the surrounding rock geological conditions of fully mechanized coal face with sublevel caving and hard roof under fault affected zone in the Jining No.3 Coal Mine, the supporting parameters of rebar-bolt and cable-bolt supporting for the gob-side tailgate with narrow pillar were designed. With roof-strata-separation instruments and borehole-peep ones, the law of strata behaviors as follows was systematically studied in the process of the driving tailgate. Roof convergence and roof strata separation between inside and outside anchored zone were much smaller. The affected zone in the process of the driving tailgate was about 50 meters. Because of serious floorheave and obvious two ribs convergence, tailgate cross-section has become reverse trapezoid shaped from the original rectangle after tailgate deformation. Since there are many more joints and fissures in the pillar of the gob-side tailgate, the coal body was compressed into loose material with block structure from the elastic material with bedded structure. The tailgate cross-section could meet its service requirement and coal face advancement, which demonstrated that the industrial test on rebar-bolt and cable-bolt supporting was successful. Therefore the obtained results were widely applied in the gob-side tailgate of the coal faces in the JNCM

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Keywords: coal mine; bolt supporting; tailgate; surrounding rock deformation; strata behavior

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