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带裂缝混凝土路面的极限承载力

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摘要: 考虑水泥混凝土路面板存在的缺陷, 运用断裂力学方法, 研究了3种典型车轮荷载位置下带裂缝混凝土路面板的极限承载力. 研究表明: 裂缝的位置、长度对路面的实际承载力有较大影响, 在同一块板上位于板边的裂缝对板的实际极限承载力影响最大, 并随裂缝长度的增加承载力迅速下降, 说明板边裂缝产生的危害比其他部位裂缝产生的危害大.

关键字: 水泥混凝土路面; 裂缝; 断裂力学; 承载力

Load-carrying capacity of a concrete pavement with cracks

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Abstract: In a concrete pavement there are many kinds of flaws. The influence of those flaws should be considered in the research of the load-carrying capacity of a concrete pavement. Using the method of fracture mechanics, the load-carrying capacity of a concrete pavement with cracks in three wheel-load place is researched, and the corresponding formulae are deduced. The results show that the place and the length of cracks in a pavement affect the load-carrying capacity of the pavement to a great degree. The cracks in the edge of a pavement influence mostly the load-carrying capacity of the pavement and the load-carrying capacity fall down rapidly with the increase of the crack length. The phenomenon shows that the extent of injury of the crack in the edge of the pavement is greater than that in that in other places.

Key words: cement concrete pavement; crack; fracture mechanics; load-carrying capacity

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