

Mechanical Property Analysis of Off-The-Road Tire for All-terrain Crane on Different Characteristics Pavement

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Abstract: The finite element model of 385/95R25 off-the-road tire for all-terrain crane with tread pattern was established. On the basis of verifying the accuracy of the model, the mechanical property of the tire on different characteristic roads (plane road, transverse boss and longitudinal boss) was analyzed. The finite element simulation results of tire inflation peripheral dimension and grounding data were consistent with the testing results, which proved the finite element model was accurate and reliable. The finite element simulation results showed that, the stress at the shoulder of the tire was concentrated at the end of the 2[#] belt, and the extreme value of strain was also here, the stress and strain of shoulder were relatively large under the condition of transverse boss. Under the condition of transverse boss, the cord tension of 1[#] belt increased obviously, and the carcass cord tension decreased in the contact area of boss. Under the condition of longitudinal boss, the cord tension in the contact area near the longitudinal boss at the end of the 1[#] belt increased, and the cord tension of the carcass changed little. The envelope stiffness of the tire was about 3 000 N · mm⁻¹. The ultimate tear energy of the tire in the damage case was 672 J, and the tear energy index had important reference significance for formula designs.

Key words: off-the-road tire; all-terrain crane; characteristic pavement; skeleton material; stress; strain; mechanical property; finite element analysis

一种轮胎内衬层尾料接取装置、防缠绕

方法及生产线

由山东华勤橡胶科技有限公司、通力轮胎有限公司和华勤橡胶工业集团有限公司申请的专利(公布号 CN 116331901A, 公布日期 2023-06-27)“一种轮胎内衬层尾料接取装置、防缠绕方法及生产线”, 涉及的尾料接取装置安装在轮胎内衬层生产线的过渡输送带下侧, 其包括支撑架、自由辊和驱动机构。其中, 支撑架固定在过渡输送带下侧, 自由辊与支撑架滑动连接; 驱动机构包括固定端和活动端, 固定端固定在支撑架下侧, 活动端与自由辊连接, 驱动机构能够驱动自由辊相对支撑架滑动, 使自由辊移动到浮动辊下侧以对内衬层进行接取。该发明通过在过渡输送带端部的底侧设置接取装置, 解决了内衬层尾料缠住浮动辊而导致设备损坏的问题。

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一种侧板及轮胎模具

由山东豪迈机械科技股份有限公司申请的专利(公布号 CN 116330543A, 公布日期 2023-06-27)“一种侧板及轮胎模具”, 涉及的侧板本体上设有用于固定活字块套体的凹槽, 活字块套体设有活字块凹槽, 活字块可在活字块凹槽中上下运动; 活字块设有槽口, 槽口可与卡块卡接以完成自锁; 卡块下部设置顶出机构, 顶出机构上下运动以推动卡块水平运动进而推动活字块向上运动; 活字块套体设有卡块凹槽, 卡块可在卡块凹槽内水平运动; 卡块与活字块卡接的一侧设置自锁凸起, 卡块另一侧设置弹性件; 顶出机构为顶块, 顶块顶部还设置平面, 用于挤压活字块底部进而推出活字块。该装置在活字块套体设置顶出机构和卡块, 可配合将活字块自动推出, 对模具损伤小, 可重复使用性强, 具有较高的实用性。

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