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Application of 0.22+6+11×0.20HT Steel Cord in Carcass of Truck and Bus Radial Tire

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Abstract: The application of 0.22+6+11×0.20HT steel cord in the carcass of truck and bus radial tire was investigated. The results showed that, compared with traditional 3+9+15×0.175+0.15NT steel cord, 0.22+6+11×0.20HT steel cord possessed a higher monofilament intensity, smaller cord diameter and linear density, better rubber permeability, better wear resistance and fatigue resistance. Using 0.22+6+11×0.20HT steel cord instead of 3+9+15×0.175+0.15NT steel cord in the carcass of 12R22.5 18PR truck and bus radial tire, the process stability was good, the strength of tire could be ensured, the endurance was improved, and the rolling resistance was reduced. Meanwhile, the material consumption and production cost were reduced.

Key words: steel cord; truck and bus radial tire; carcass; rubber permeability; fatigue resistance; endurance

风神轮胎焦作基地缠绕鼓控制程序智能升级

2020年,风神轮胎股份有限公司焦作基地(简称焦作基地)将技术创新与提质增效有机结合,积极解决生产实际难题。

工程机械轮胎胎面缠绕是轮胎半成品制作的关键工序,作为缠绕工序的主要生产装置之一,缠绕鼓能否正常运转直接影响胎坯缠绕效率。实际生产中由于缠绕轮胎规格的变更,经常需要更换缠绕鼓,更换后由于撑合脉冲设定不合适和丝杠螺母行程不同,在操作过程中容易出现缠绕鼓挤死的情况,而缠绕鼓的频繁挤死极易导致缠绕鼓固定键断裂,从而造成缠绕鼓过早损坏。据统计,焦作基地每年由于缠绕鼓挤死至少损坏10个缠绕鼓,不仅严重影响生产,而且大大增加了生产成本,但由于处理难度大,长期以来成为制约缠绕效率提升的“瓶颈”。

为此,焦作基地成型工序设备管理人员根据缠绕鼓的撑合原理,对缠绕鼓的控制程序进行智能升级改造:引入自动报警装置,重新编制操作程序,在人机操作界面的基础上加装可视化操作界面。改造完成后,当缠绕鼓出现撑合不合适时,操作系统会自动报警,操作人员便可以通过可视界面查看缠绕鼓脉冲设置、修改脉冲数值,并可通过点击界面按钮一键完成缠绕鼓的自动校准,从而避免了缠绕鼓出现挤死的情况,彻底消除了因缠绕鼓固定键被挤断而引起过早损坏的隐患,大大提高了生产效率,同时降低了维修成本。

自此项升级改造实施以来,焦作基地缠绕效率提高10%,缠绕鼓达到100天无维修记录,累计创效10多万元。

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