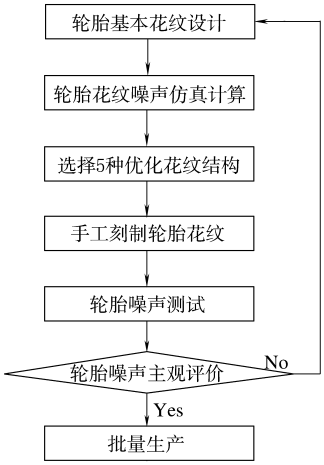

图 14 低噪声轮胎花纹设计流程

击声、光面轮胎的沙声和沟槽空气柱共鸣声是轮胎噪声的主要来源。

(2)横向沟槽形状对轮胎噪声影响很大,90°横向沟槽的轮胎噪声最大。随着轮胎沟槽深度的增大和沟槽数目的增加,轮胎噪声增大。

(3)横向封闭沟槽轮胎噪声高于同样形状大小开放沟槽轮胎噪声。对于有方向性要求的花纹,沟槽方向对轮胎噪声的声压级和频谱曲线有较大影响。

(4)改变轮胎的高阶振动模态特性,可以降低轮胎噪声。

(5)Zwicker 响度与主观评价有较高的一致性,可以作为轮胎噪声客观评价指标。

(6)低噪声轮胎设计方法的应用缩短了新产品的开发周期,为轮胎结构的动态优化设计、降低城市车辆和环境噪声提供了理论依据。

参考文献:

[1] 葛剑敏. 轮胎振动和噪声机理及试验研究[D]. 上海:同济大学,2001.

[2] Paul R D. Tire-pavement interaction noise measurement under vehicleoperating conditions of cruise and acceleration[Z]. SAE 931276,1993.

[3] James K T. The development of a new SAE truck tire-pavement interaction noise measurement procedure[Z]. SAE 931277,1993.

[4] Gijs J, Van B, Alex V M. Reducing tire/road noise with porous road surfaces and the effect of tire choice[Z]. SAE 931279,1993.

收稿日期:2005-08-25

Design and application of low-noise tire

GE Jian-min[1], *FAN Jun-yan*[2], *WANG Sheng-fa*[2], *LONG You-ming*[2]

[1. Tongji University, Shanghai 200092, China; 2. Shanghai Tire (Group) Co., Ltd, Shanghai 200092, China]

Abstract: The methods for measuring and evaluating tire noise were investigated and the affecting factors on tire noise were analyzed. The results showed that the shape of transverse groove had significant effect on the tire noise and the 90° transverse groove generated the highest noise; the tire noise increased as the groove depth and number increased; the noise of tire with closed transverse groove was higher than that with similar open groove; for the directional tread patterns, the direction of groove had greater effect on the noise level and frequency curve; and the tire noise could be decreased by changing tire modality at high frequent vibration. The Zwicker loudness was well in accordance with the subjective judgment, so it could be used as an index of tire noise in objective evaluation.

Keywords: tire; noise; affecting factor; measuring method; evaluating index

万达集团 36 亿元投资全钢载重子午线轮胎

中图分类号:TQ336.1;U463.341+.3 **文献标识码**:D

山东万达集团计划投资 36 亿元分三期建成年生产能力为 360 万套的全钢载重子午线轮胎项目。一期投资 12 亿元,年生产能力达 120 万套,已于 2004 年 12 月投产;二期投资 12 亿元,目前正在建设中;三期将于 2006 年建设完成。工程完成后,全钢载重子午线轮胎将成为该公司的支柱产品。

[十拿化工(上海)有限公司 沈 彰供稿]