

Optimization and Modification Designing Feedback

Northern Heavy Industries purchased mill liner from other manufacturer and meet some problems, we CIC analysis and solve the problems successfully.

❖ **Client:** Northern Heavy Industries Group, Ltd

❖ **Mill Specification:** $\Phi 6.4 \times 3.3$ m SAG Mill

❖ **Problems Description:**

1) Cracking of mill liner was found after running the mill in a few days.

2) The service life of mill liner is less than three month.

3) By listening the grinding sound, we can hear the sound of lots of steel balls knocking the mill liners.

4) Production efficiency of mill is low.

❖ **Reasons analysis:**

1) Wrong designing of shell liners: the cone angle of mill liner lifter bar is too small, which leading the grinding media wrongly to the shell liner working surface instead of the area of ore gathering and result in the damage of mill liner. All these will influence the service life of mill liner and production efficiency of mills.

2) Wrong designing of end liner and grate liner: The lifter bar is too narrow, this will also shorten the service life of mill liner.

❖ **Solutions:**

1) Proper designing of the cone angle of mill liner lifter bar, the lifter bar will lead the grinding media falling down in a proper path.

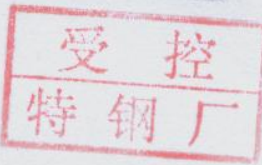
2) Increase the size of mill liner lifter bar, prolong the service period of lifter bar maximumly.

3) Cylinder liners are designed as spacing configuration of high & low rectangular lifting bars, the designing can increase the space volume of grinding ball and large processing ore.

4) Strength the lifter bar of end liner and grate liner.

❖ **Feedback from the client:**

CIC did the optimization and modification of mill liners and solved the problems of mill liner cracking. The service life of mill liner is prolonged to more than six month. We get a good reputation from our customer.



质量信息反馈单

编号: Q/JL7210

序号:

责任部门: 北方重工集团有限公司

产品或零件名称: _____ 图号: _____

质量问题描述:
 内蒙古东开庙矿业 $\phi 6.4 \times 3.3m$ 半自磨机开机运行数天后检查发现筒体衬板有碎裂现象, 衬板使用寿命低于三个月, 监听半自磨机运行噪音存在大量钢球冲砸衬板的噪音, 磨机生产效率低下。

填表人: 姜伟 日期: 15.2.1

原因分析:
 1> 半自磨机筒体衬板设计错误: 衬板提升条部位锥面夹角过小, 导致磨内介质被错误导向迎球侧筒体衬板造成衬板损毁, 同时磨内介质不能被导向下落冲砸至磨底物料富集区域, 造成磨机效率低下。提升条过于窄小, 影响了磨机自效及衬板使用寿命。
 2> 端衬板及格子板设计有误, 阻料凸起过于窄小造成端衬板寿命短。

责任部门责任人: 梁强华 日期: 15.2.4

纠正或预防措施:
 针对1>合理确定衬板提升条锥面夹角, 正确导向被提升磨内介质的抛落轨迹, 同时按比例加大衬板提升条部位设计尺寸, 最大限度延长提升条在整个服役周期内完整性
 ②筒体衬板提升条采用高低相间的设计方案以加大相间高提升条间存留磨球及大块物料的空间容积。
 针对2>强化端衬板与格子板表面的阻料凸起。

责任部门责任人: 张万鑫 日期: 15.2.4

跟踪验证及反馈:
 经过我公司对东开庙矿业 $\phi 6.4 \times 3.3m$ 半自磨机一系列的优化改造, 成功的解决了 $\phi 6.4 \times 3.3m$ 半自磨机筒体衬板断裂的问题, 并且延长了筒体衬板的使用寿命达六个月以上得到了内蒙古东开庙矿业公司的一致好评。

验证部门: 张万鑫 日期: 15.2.7

注: 本表一式二联。责任部门、质检部各一份。