



北京金煤创业科技股份有限公司

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DJM 陶瓷金属复合立磨磨盘技术介绍

DJM Metal ceramic composite vertical mill pan (liner) technology introduction

由于立磨的低能耗，新建的大型水泥生产线基本均采用立磨作为生料磨/煤磨，甚至水泥磨，最大的立磨产量可达 600-700 吨/小时，而对立磨中备件即辊套与磨盘要求具有防断裂的可靠性及抗磨损的耐磨性。通常辊套与磨盘所采用的合金有 4 类，即：Mn 钢、NihardIV 合金、高 Cr 合金、Hardfacing（表面堆焊）。虽然从 Mn 钢至表面堆焊，其材料硬度越来越大，耐磨性提高，但同时其脆性也大大增加，断裂的危险性也越来越大。因而如何选择具有高耐磨性但又咳防止断裂的材料成为决定立磨备件材料的重要决定因素。

一般 LM, ZGM, HP 和 CKP 立磨的辊子及衬板，一般原设备制造商均采用高 Cr 合金铸造，其断裂的危险较大，耐磨寿命自然较低。针对这一情况，DJM 选用高铬（或马氏体钢）陶瓷复合铸造工艺，即衬板的基体采用塑性马氏体钢或高铬铸铁，其有一定的弹性伸长，因而具有抗断裂的完全安全性，同时在基体上嵌铸具有高耐磨性的陶瓷加强筋，因而大大提高衬板的耐磨性。陶瓷复合材料衬板的寿命与一般高铬衬板相比，寿命可达 1.5 - 2 倍以上。

Due to vertical mill low energy consumption, the newly built large-scale cement production line adopts vertical mill as basic raw material/coal grinding, even cement mill, the largest vertical mill output can reach 600-600 tons/hour, while the roller is required with reliable against fracture and abrasive wheel wear resistance. Usually adopt four types alloy: Mn steel, NihardIV alloy, high Cr alloy, Hardfacing (surface overlaying). Although Mn steel to surface overlaying, the material hardness is more and more big, the wear resistance improved, but its brittleness has been greatly increased at the same time, the risk of fracture is also growing. So how to choose the material with high resistance to wear and can prevent fracture become the important determinants of vertical mill spare parts materials.

DJM choose High Cr cast iron(or Martensite steel) base ceramic composite materials, which is the liner basement with High Cr cast iron(or Martensite steel), it has better elongation, thus has completely safety of resistance to fracture and embed high wear resistance of ceramic reinforcement into the basement, to get great improvement wear resistance. The life of the ceramic composite liner, compared with common High Cr liner life can reach more than 1.5-2 times.

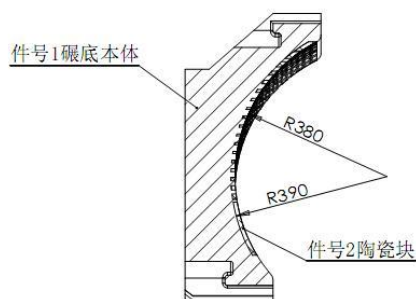
Product include:

High Cr cast iron + ZTA ceramic particles

Martensite steel + ZTA ceramic particles

附图-3-1 铁基陶瓷复合材料磨盘示意图

Picture -3-1 sketch map of Mill pan



Position-1 basis material Position-2 Ceramic composites



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附图-3-2 高铬陶瓷复合 ZGM 衬板外观图

Picture 3-2 Metal Ceramic Composite Liner (ZGM Liner of High Cr cast iron +ZTA ceramic)



附图-3-3 高铬陶瓷复合 HP 衬板外观图

Picture 3-3 Metal Ceramic Composite Liner (HP863 Liner of High Cr cast iron +ZTA ceramic)

