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DJM 陶瓷金属复合齿辊破机齿辊（齿环）技术介绍

DJM Metal ceramic composite tooth Segments of toothed roll crusher technology introduction

齿辊破碎机主要采用特殊耐磨齿辊高速旋转对物料进行劈裂破碎(传统齿辊破碎机采用低速挤压破碎)，形成了高生产率的机理。两齿辊轴固定安装,它们的相对运动如同一个旋转的格筛,满足粒度要求的物料首先由齿辊或齿辊与衬板间隙漏下实现初步筛分,从而可以避免那部分物料经过辊齿的再破碎,既降低了物料的过破碎率和能耗,又减少了辊齿的破碎时间,延长了使用寿命。同时使齿辊差速相向运转,具有更好的剪切和拉伸破碎效果。辊齿的运动还使得物料破碎后被强制排出,不易产生拥堵,因而也适合黏性物料和含水分较高的物料。

齿辊破碎机的破碎齿辊是齿辊破碎机的关键配件，传统破碎齿辊多以合金模具钢铸造，利用合金模具钢的硬度高，强度高的特点来提高耐磨性。破碎齿的工作状况具有高冲击，高频率，高耐磨等特点，所以对材质性能要求既有高耐磨性，又具备抗冲击性，这两点决定了其使用寿命。 DJM 选用马氏体钢复合陶瓷铸造制作破碎齿辊，采用粉末冶金制芯结合铸造工艺，在马氏体钢表面铸入陶瓷颗粒形成陶瓷金属复合材料加强筋，这层复合层的耐磨性能可达合金钢的 3－4 倍，同时这一复合层的厚度可制成达到原备件厚度的 1/3，在保持马氏体钢原有的高强度耐冲击性能的同时提高了马氏体钢的耐磨强度，陶瓷复合材料的寿命约为合金钢材料的 3-4 倍以上。提高齿辊工作面的抗磨性能，从而获得即耐磨且抗冲击的破碎齿辊。

Tooth Roll crusher crushs the material with the special wear-resistant tooth in high speed rotation. (The way of low speed extrusion crushing is used by traditional roll crusher), forming a mechanism of high productivity. Two teeth rollers are mounted together fixedly, their relative movement acts like a rotating grate to screen out the required particle initially from the gap between the rollers to avoid the rebreaking the material, which not only reduce the energy consumption and reduce the excessive crushing rate, but also reduce the working time of the teeth and increase the its lifetime. At the same time, differential and opposite rolling of the teeth can shear and crush the material more efficiently. And the movement of the roller can forece the crushed material out to avoid blocking, so it is more suitable for viscous material and material of high moisture .

Roller tooth is the key part of the roller crusher, the traditional tooth is usually casted out from high-chromium cast iron or alloy tool steel to improve its wear resistance by high hardness of the material. The working condition of the tooth requires it to be against high impact, high-frequency and high wear resistance.In order to improve the wear and impact resistance of the tooth, DJM selects Martensite steel ceramic composite materials, which forms the ceramic metal composite reinforcement through injection of ceramic particles into the Martensite steel, the composite layer hardness is harder than high Cr material 3-4 times, at the same time, the composite layer thickness can be made to a third of the thickness of the original spare parts. Life span of the ceramic composite material is more than 2 times of a high Cr alloy material. Both feature of impact resistance and wear resistance of the tooth is achived after improving the wear resistance of the working surface.

Product include: Martensite steel + ZTA ceramic particles

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附图-1 陶瓷金属复合齿辊示意图

Picture -1 external view of Segments of toothed roll

Position-1 basis material Position-2 Ceramic composites

附图-2 陶瓷复合齿辊外观局部放大图

Picture -2 partial enlargement of appearance