



北京金煤创业科技股份有限公司

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DJM 陶瓷金属复合反击破碎机反击板（板锤）技术介绍

DJM Metal ceramic composite impact crusher impact bar (blow bar) technology introduction

反击式破碎机其主要的原理是利用物料在高速中产生的冲击作用而进行破碎作业的,进入破碎机机体的物料在设定的流道内,在第一、第二反击板冲击面上经过一定时间和一定冲程的反复冲击作用,最终实现物料破碎。这个反击破碎机工作的过程中,物料的破碎主要是由高速冲击在板锤上时发生的。由于反击式破碎机内部的破碎腔较大,在反击破碎机板锤的作用下,物料有足够的空间来充分加速并具备一定的动能,从而产生足够的冲击力,以二倍的转子速度撞击反击板,实现部分破碎,而后一部分物料会在加速的过程中在空中相互撞击而得到进一步粉碎。目前广泛使用的锤头都是采用高铬铸铁制造。当物料与高速旋转的锤头撞击时,物料尖角压入锤面,形成撞击坑,其冲击力全部转为对锤面的压应力,此时锤头属于冲击凿削磨损。当物料以一定角度撞击锤头或锤头与篦板相互搓磨时,冲击力分解为平行锤面的切向应力,对锤头表面进行切削,形成一道道切削沟槽,则为切削冲刷磨损。针对上述问题为进一步提高其耐磨寿命, DJM 选用高铬铸铁(或马氏体钢)陶瓷复合材料,即在高 Cr 材料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高 Cr 材料的 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。陶瓷复合材料板锤的寿命约为高 Cr 合金板锤的 2 倍以上。

Impact crusher main principle is to use the material in high speed impact and crushing operations, the material into the crusher body in a certain runner , on the first and second impact plate shock after a certain time and stroke of repeated impact, realize the material break finally .during the impact work process, the material broken is mainly depended on the high speed impact on the blow bar. Due to large internal crushing cavity, the material has enough space to full speed and have a certain kinetic energy under the blow bar, thereby has enough impact energy to realize the material part broken. And other part of the material will be broken through rattled one against another during the accelerate processing in air.

Currently, the blow bar is widely used high chromium cast iron manufacturing. When the material with the high speed rotating bar impact, material sharp corner pressed into the bar surface and form a impact crater, its impact energy all changed to bar surface compressive stress, the impact bar head belong to chisel cutting wear and tear.

When the material impact the bar with a certain angle or grind with grate plate, impact energy is decomposed into parallel bar tangential stress, cutting the bar surface to form some cutting groove, it is called cutting erosion wear.

In order to get a further improvement of the wear life, DJM selects high-Cr cast iron(or martensite steel)ceramic composite materials, which forms the ceramic metal composite reinforcement through injection of ceramic particles into the high-Cr material , the composite layer wear-resisting property is 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. Ceramic composite material blow bar life is longer than 2 times of a high Cr alloy blow bar.

Product include:

High Cr cast iron + ZTA ceramic particles

Martensite steel + ZTA ceramic particles

High Mn Steel + ZTA ceramic particles

附图-1-1 马氏体钢陶瓷复合板锤外观图

Picture 1-1 blow bar of Martensite steel ceramic composite



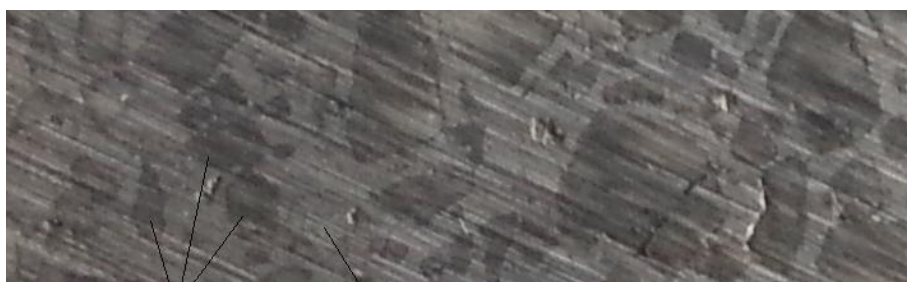
附图-1-2 高 Cr 陶瓷复合板锤局部图

Picture 1-2 blow bar of HighCr cast Iron Ceramic composite



附图-1-3 高 Cr 陶瓷复合板锤外观局部放大图

Picture 1-3 partial enlargement of appearance



Ceramic particles
HV1400

High Cr cast iron
HRC 58

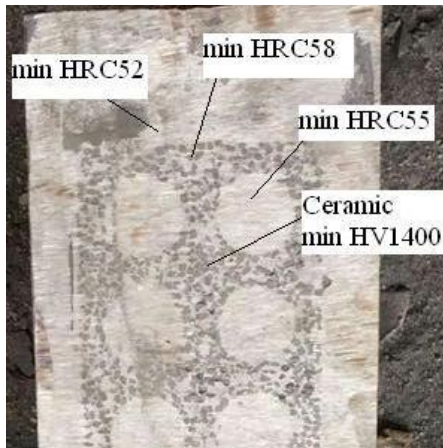


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Mechanical property of Martensite steel:

(after heat treatment)

Tensile strength: >1600 Mpa

Yielding point: > 1400 Mpa

Hardness: > HRC 50

Impact: σ_{kv} (J/cm²): =30



Mechanical property of High Cr Cast iron:

(after heat treatment)

Tensile strength: >600Mpa

Yielding point: > 400Mpa

Hardness: > HRC 56

Impact: σ_{kv} (J/cm²): >3J