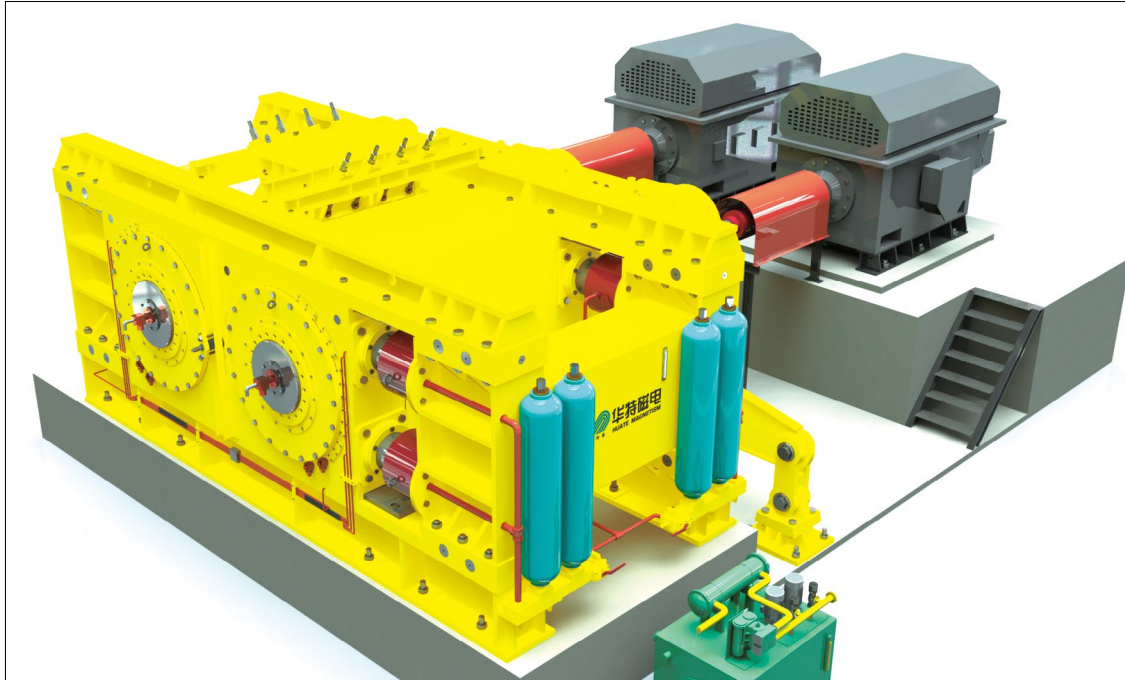


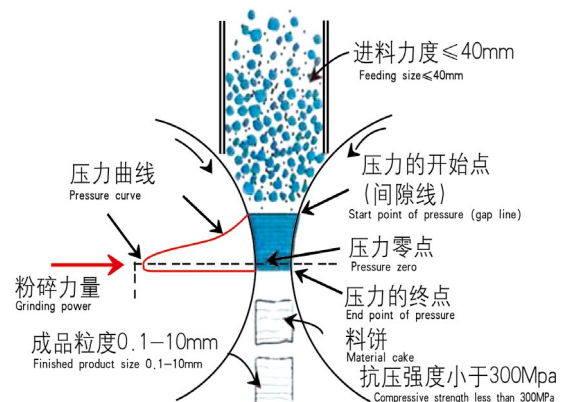
HPGM 系列高压辊磨机

HPGM SERIES HIGH PRESSURE GRINDING ROLL



工作原理 Working Principle

HPGM 系列高压辊磨机是综合国内外当前先进技术设计制造技术发展起来的一款新型设备。它是利用高压料层粉碎原理设计的一种新型节能粉磨设备。由两个相向同步低速转动的挤压辊组成，一个为固定辊，一个为活动辊，均由大功率的电机带动。物料从两辊上方均匀给入，被挤压辊连续带入辊间，受到 50–300MPa 的高压作用后，变成密实的料饼从机下排出。排出的料饼，除含有一定比例的成品外，在非成品颗粒的内部结构中，因受高压挤压而充满了大量的微小裂纹，使物料的易磨性大为改善。经过挤压后的物料，经过打散分级筛分后，小于 0.8mm 的成品细料可达 30% 左右，小于 5mm 的物料可达 80% 以上。因此，在进一步的粉磨过程中，可较大幅度的降低粉磨能耗，使粉磨设备的生产能力得以充分发挥，一般可使球磨机系统产量提高 20%–50%，总能耗可降低 30–50% 以上。



HPGM series high pressure grinding roll is a new type of energy-saving grinding equipment designed by the principle of high-pressure material layer pulverization. It consists of two squeezing rolls that rotate synchronously at a low speed. One is a stationary roll and the other is a movable roll, which are both driven by a high-power motor. The materials are evenly fed from above the two rolls, and are continuously carried into the roll gap by the squeezing roll. After being subjected to a high pressure of 50–300 MPa, the dense material cake is discharged from the machine. In the discharged material cake, in addition to a certain proportion of the qualified products, the internal structure of the particles of non-qualified products is filled with a large number of micro cracks due to high pressure extrusion, so that the material's grind ability is greatly improved. For the materials after extrusion, after breaking up, classifying and screening, the fine materials of less than 0.8 mm can reach about 30%, and the materials of less than 5 mm can reach more than 80%. Therefore, in the further grinding process, the grinding energy consumption can be reduced to a large extent, so that the production capacity of the grinding equipment can be fully exerted, generally the ball mill system capacity can be increased by 20%~50%, and the total energy consumption can be reduced by 30%~50% or more.

应用领域 Application Fields

我国金属矿石资源种类繁多，但大多数矿种品质属贫、杂、细。国内金属矿山企业为了解决自身在矿业开发上存在的经济、技术和环保等方面面临的突出问题，积极引进、消化、吸收国外新型、高效的矿山生产工艺设备。高压辊磨机就是在这样的市场背景下，首先得到研究、论证，并开始在国内金属矿山企业应用的高效粉碎设备，也是国内矿业界当下最为关注的矿山生产设备。可以说高压辊磨机在国内金属矿山应用广泛。高压辊磨机在国内、外已普遍应用于水泥行业的粉碎，化工行业的造粒，以及球团矿增加比表面积的细磨。用于金属矿石的破碎，以实现简化碎矿流程、多碎少磨、提高系统生产能力、改善磨矿效果或选别指标等不同目的生产。

There are many kinds of metal ore resources in China, but the qualities of most mineral varieties are poor, miscellaneous and fine. In order to solve the outstanding problems in the economic, technical and environmental protection aspects of mining development, domestic metal mining enterprises actively introduce, digest and absorb foreign new and efficient mining production equipment. In this market background, the HPGR is high-efficiency grinding equipment first researched and demonstrated, and begins to be used in domestic metal mining enterprises. It is also the mine production equipment most concerned by the domestic mining industry. It can be said that HPGR is widely used in domestic metal mines. The HPGR has been widely used home and abroad in the grinding in the cement industry, granulation in the chemical industry, and fine grinding of pellet to increase the specific surface area. It is used for the crushing of metal ore to achieve different purposes such as simplifying the crushing process, more crushing and less grinding, improving system productivity, improving grinding effect or separation indicators.

实践适用范围 Practical Application Scope

1. 松散物料的中碎、细磨碎和超细磨碎。
2. 选矿行业，可布置在球磨机之前，可以作为预磨设备，也可和球磨机构成混合粉磨系统。
3. 氧化球团行业，可以代替普遍采用的润磨机。
4. 建材、耐火材料等行业，目前在水泥熟料、石灰石、铝矾土等粉磨上均有成功应用。

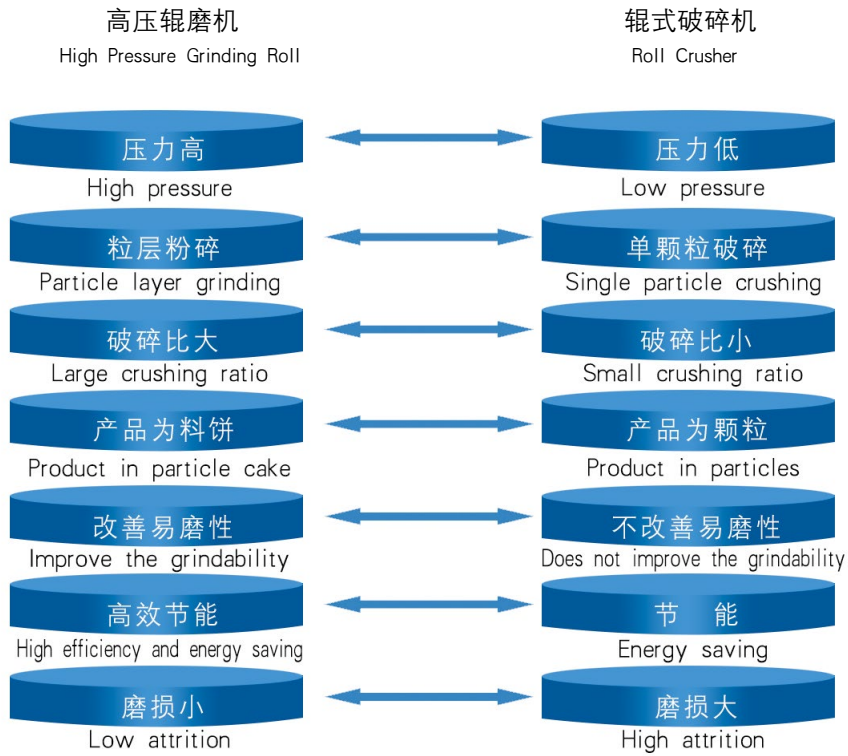
1. Medium, fine and ultrafine grinding of bulk materials.
2. In the mineral processing industry, can be placed before the ball mill, as a pre-grinding equipment, or make up a combined grinding system with a ball mill.
3. In the oxidized pellet industry, can replace the commonly used damp mill.
4. In building materials, refractory materials and other industries, have been successfully applied in cement clinker, limestone, bauxite and other grinding.

产品优势 Product Advantages:

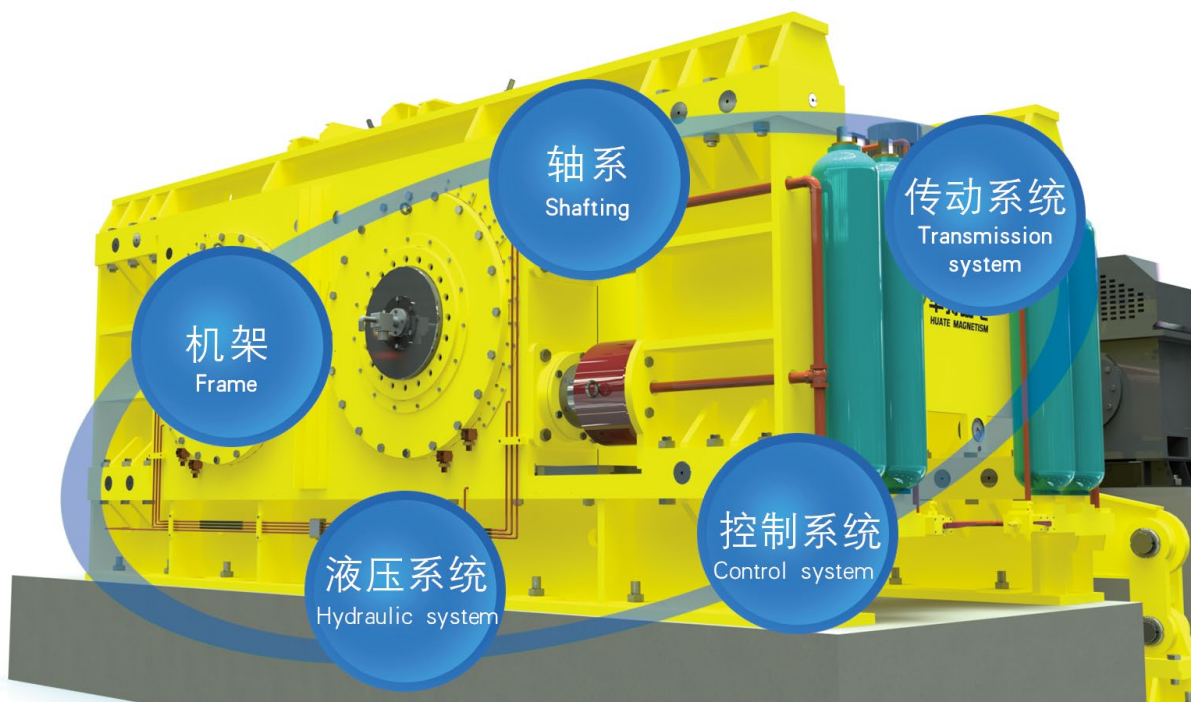
1. 恒压力设计，保证辊间压力平稳，保证破碎效果。
2. 自动纠偏，能迅速调整辊隙，确保设备的平稳。
3. 边料分离系统，降低边缘效应对破碎效果的影响。
4. 硬质合金柱钉，寿命长，易于维护，柱钉可换。
5. 阀组采用进口组件，液压系统设计合理，可靠性好。

1. Constant pressure design ensures smooth pressure between rolls and ensures crushing effect.
2. Automatic deviation correction, can quickly adjust the roll gap to ensure the smoothness of the equipment.
3. The edge separation system reduces the effect of edge effects on the crushing effect.
4. With cemented carbide studs, long service life, easy maintenance, and replaceable.
5. The valve bank adopts imported components, and the hydraulic system has reasonable design and good reliability.

高压辊磨机与辊式破碎机的区别 The difference between HPGR and roller crusher



高压辊磨机的构造 Structure of HPGR



产品参数 Product Parameters

规格型号 Model	辊子直径 mm Roll diameter mm	辊子宽度 mm Roll width mm	矿石通过量 Throughput capacity	入料粒度 Feed size	总重 t Machine weight t	装机功率 Installed power
HPGM0630	600	300	25-40	10-30	6	74
HPGM0850	800	500	50-110	20-35	25	150-220
HPGM1050	1000	500	90-200	20-35	52	260-400
HPGM1250	1200	500	170-300	20-35	75	500-640
HPGM1260	1200	600	200-400	20-35	78	600-800
HPGM1450	1400	500	200-400	30-40	168	600-800
HPGM1480	1400	800	270-630	30-40	172	800-1260
HPGM16100	1600	1000	470-1000	30-50	220	1400-2000
HPGM16120	1600	1200	570-1120	30-50	230	1600-2240
HPGM16140	1600	1400	700-1250	30-50	240	2000-2500
HPGM18100	1800	1000	540-1120	30-60	225	1600-2240
HPGM18160	1800	1600	840-1600	30-60	320	2500-3200

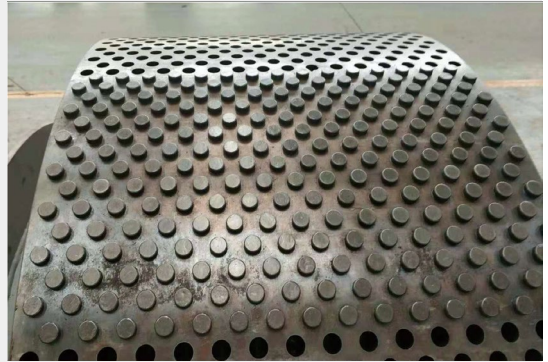
(仅供参考) for reference only

高压辊磨机的构造特点 Structural features of HPGR

1. 新型柱钉辊面技术 New type stud roll surface technology

采用优质硬质合金柱钉，硬度高，耐磨性好，柱钉排布经过计算机仿真设计，排布合理，能在柱钉间形成均匀料层，有效保护柱钉及辊面，提高了挤压辊使用寿命。柱钉采用进口专用粘接剂安装，更换方便。

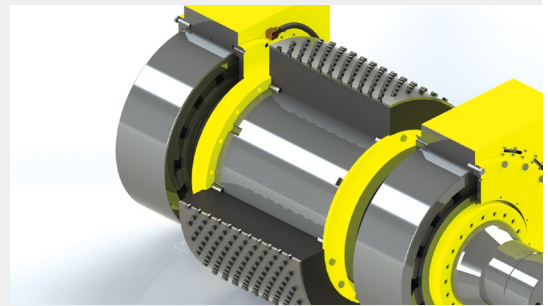
It adopts high-quality hard alloy studs with high hardness and good wear resistance. The stud arrangement is designed by computer simulation, and the arrangement is reasonable, which can form a uniform material layer between the studs, effectively protecting the studs and roll surfaces, and improving the service life of squeezing roll. The studs are installed with imported special adhesives for easy replacement.



2. 辊套和主轴分离技术 Separation technology of roll bushing and main shaft

挤压辊本体采用优质锻钢，辊套使用优质合金钢锻造，主轴及辊采用不同材质，提高了主轴的韧性及辊套的刚度，轴套寿命大幅度提高，采用合理结构辊套更换方便，大幅度降低了辊套更换难度。

The main body of the squeezing roll is made of high-quality forged steel, and the roll bushing is forged with high-quality alloy steel. The main shaft and the rolls are made of different materials, which improves the toughness of the main shaft and the rigidity of the roll bushing. The service life of the shaft bushing is greatly improved. The replacement of the roll bushing is convenient.



3. 轴承快速拆装技术 Bearing quick mounting and dismounting technology

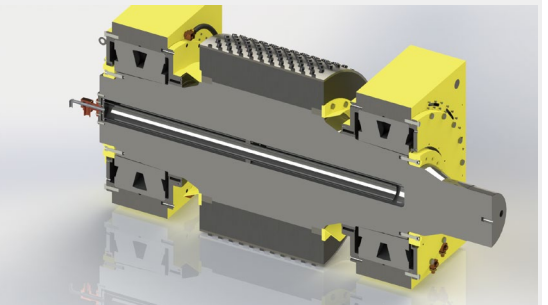
采用优质锥孔轴承，预留高压油槽，可以方便用高压油泵打油拆卸轴承，大幅度降低了更换轴承难度，提改了维护效率。High-quality tapered hole bearings are adopted and high-pressure oil tank is preformed. The bearing can be easily dismantled through high-pressure oil pump, greatly reducing the difficulty of replacing the bearing and improving the maintenance efficiency.



4. 多重组合密封技术 Multiple combined sealing technology

轴承密封采用多种J型加V型以及迷宫密封，组合式密封技术有效保证了轴承的密封效果。

The bearing seal adopts a variety of J-type plus V-type and labyrinth seals, and the combined sealing technology effectively ensures the sealing effect of the bearing.



5. 高强度机架 High strength frame

机架采用优质碳素结构钢焊接而成，整体机架经过三维强度校核，强度高，可靠性好，机架采用整体退火后加工，机架变形小。

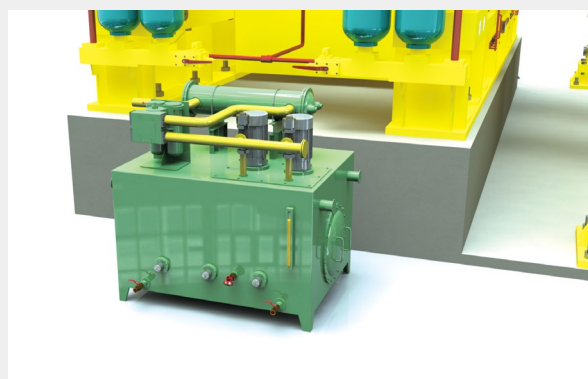
The frame is welded with high-quality carbon structural steel. The whole frame strength is three-dimensionally checked, with high strength and good reliability. The frame is processed by integral annealing and the frame deformation is small.



6. 优质可靠液压系统 High quality and reliable hydraulic system

根据不同物料的破碎特性，优化液压系统的压力参数，尤其对于铁矿、锰矿等金属矿物的破碎特性采取了特殊设计。液压阀组采用进口名牌产品可靠稳定。

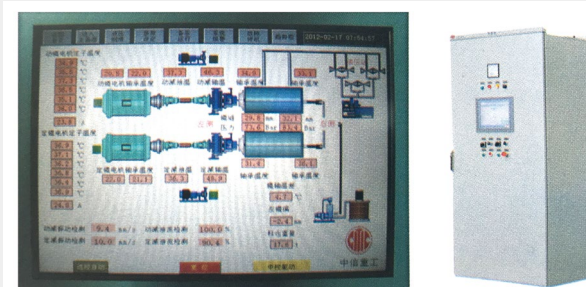
According to the crushing characteristics of different materials, the pressure parameters of the hydraulic system are optimized, and a special design is adopted especially for the crushing characteristics of metal minerals such as iron ore and manganese ore. The hydraulic valve group adopts imported famous brand products and is reliable and stable.



7. 自动化控制系统及集中润滑系统 Automated control system and centralized lubrication system

采用西门子 PLC 以及全触摸屏，整体控制方案，能做到整机无人值守，可以方便的修改压力及各种参数，方便不同矿物的破碎。整机采用集中润滑系统，可以根据不同工况调整润滑量及频次。

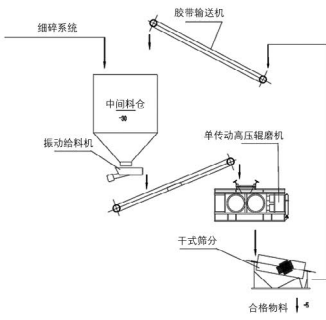
With Siemens PLC and full touch screen, and the overall control scheme, the whole machine can be unattended, and the pressure and various parameters can be easily modified to facilitate the crushing of different minerals. The whole machine adopts centralized lubrication system, which can adjust the lubrication amount and frequency with working conditions.



铁矿选矿流程 Iron Ore Beneficiation Flow

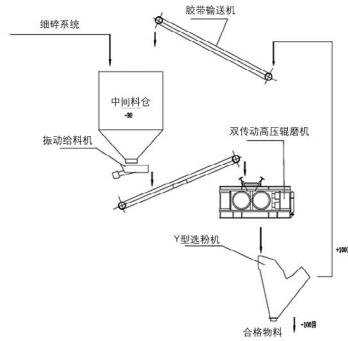
钢渣破碎

Crushing of Steel Slag



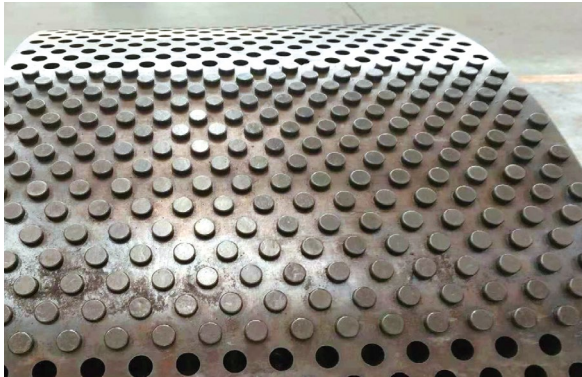
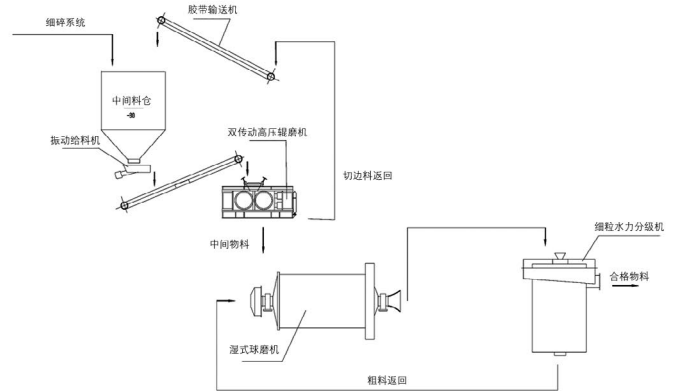
水泥熟料破碎

Crushing of Cement Clinker



铁矿破碎磨矿系统

Crushing & Grinding System of Iron Ore

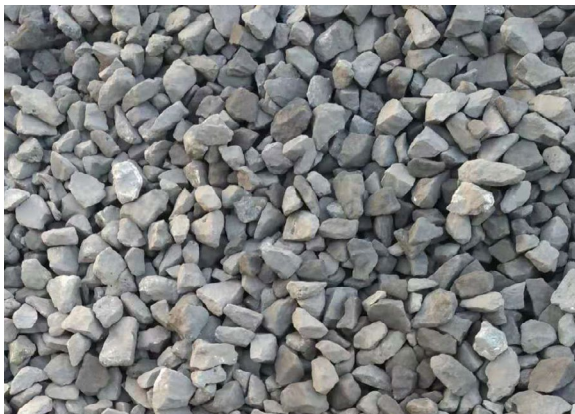


优质耐磨柱钉辊面

High Quality Wear-Resistant Roll Surface with Studs



挤压物料后辊面形成致密料层对辊面保护
After the materials are extruded, a dense material layer is formed on the roll surface to protect the roll surface.



原矿

Raw Material



料饼

Material Cake

高压辊磨机工程案例 Project Cases of HPGR

