

High Pressure Grinding Roller(HPGR) A Key Advancement in Comminution Technology

HPGR

High Pressure Grinding Rollers, also known as HPGRs, are an energy efficient comminution technology that was primarily developed for crushing and fine grinding raw materials in the mining and minerals processing industry. HPGR technology utilizes the fuller crushing effect of compressive particle breakage as opposed to conventional impact, attrition or abrasion. While HPGRs have mainly been adopted for minerals processing applications, they are now increasingly being used for shaping and granulating applications in other industries as well.

Working Mechanism of HPGR

High

Pressure Grinding Roller (HPGR) is the

feed material is pressed between two counter rotating, parallel rollers with a small gap setting between them. The rolls have a hardened outer shell and are

pressed towards each other by hydraulic cylinders with a force of several hundred tons. The high pressure and shearing forces generated between the two

rollers result in complete particle breakage and size reduction. The optimized roll geometry used in HPGRs results in higher comminution forces than conventional compression crushers.

Advantages of HPGR Technology

Some of the key advantages of high pressure grinding roller (HPGR) technology compared to conventional crushing equipment include:

- Higher energy efficiency: HPGRs require significantly less energy for the same amount of material size reduction compared to conventional crushing methods. This is mainly due to the optimized compressive crushing mechanism used.

- Improved particle shape and surface characteristics: HPGR crushing produces much less fines but with a better cubical product shape and surface texture. This results in improved downstream processing performance.

